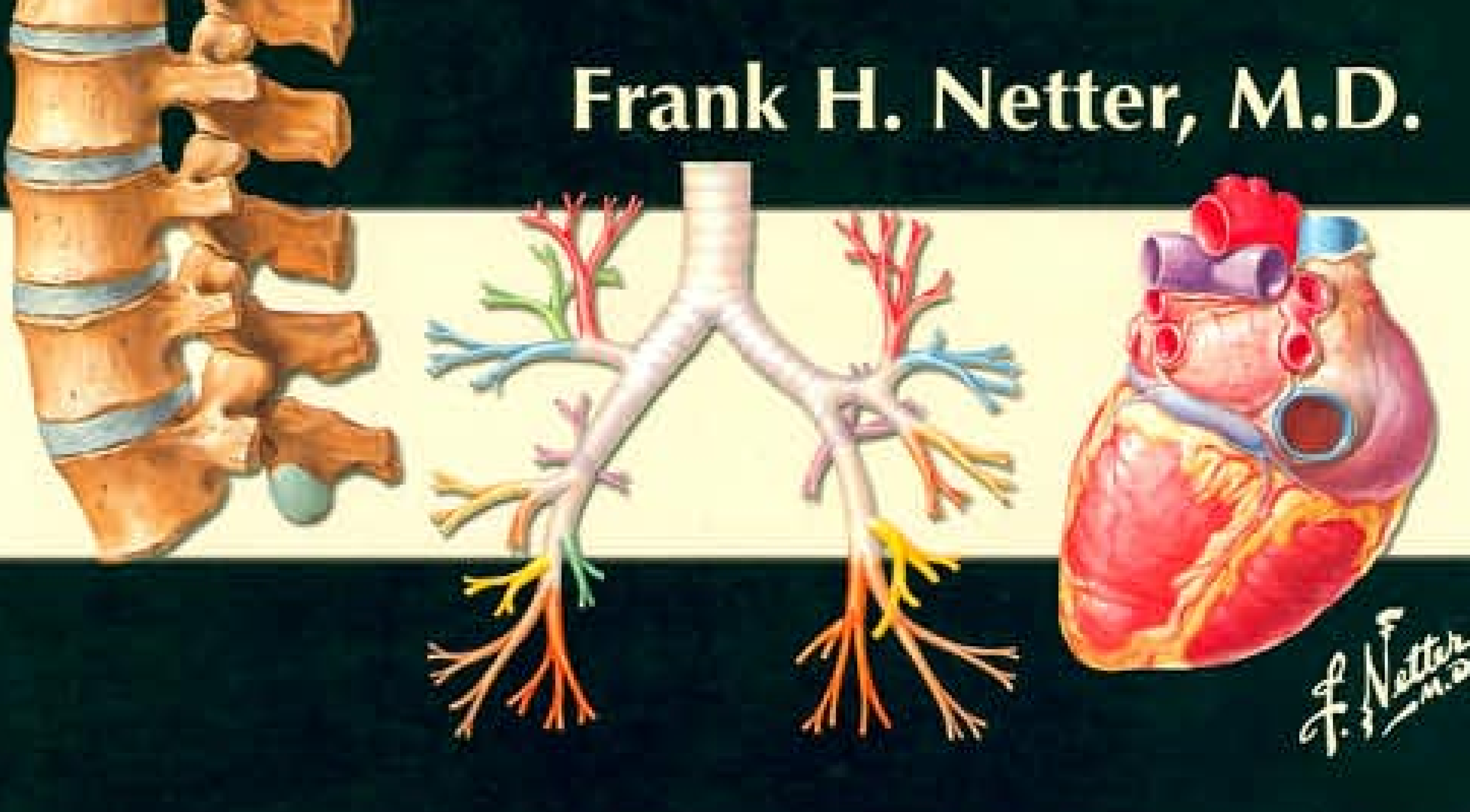
Atlas of Human Anatomy

Third Edition

Frank H. Netter, M.D.



To Those Who Bequeath Their Bodies to Science

Hic locus est ubi mors gaudet succurrere vitae

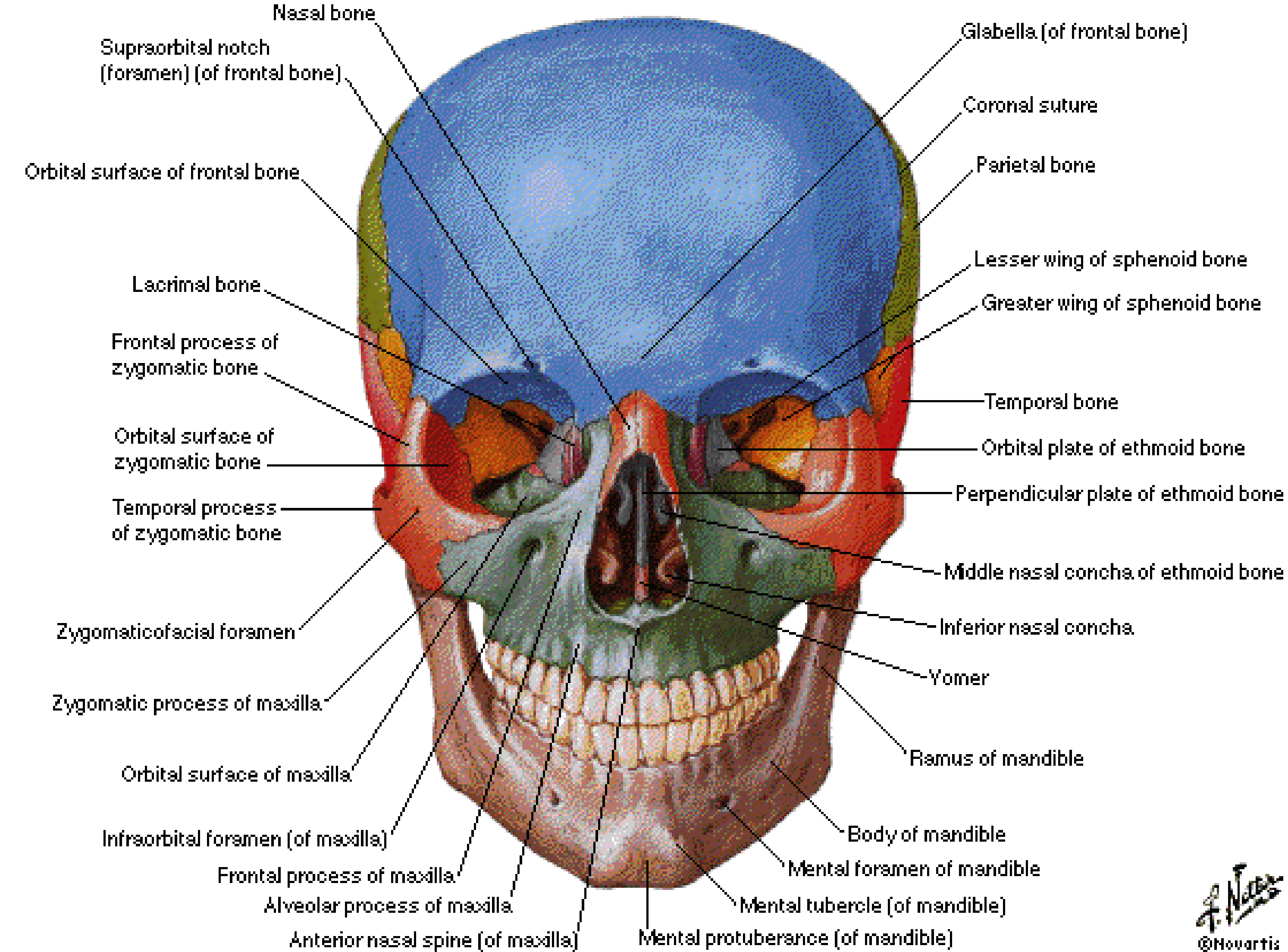
"This is the place where death delights in helping life"

—Inscription above the Anatomical Theatre of Bologna

This atlas of human anatomy begins by paying due homage and returning thanks to those who freely bequeath their bodies to anatomy. Such donations testify to an admirable, unselfish, and idealistic sense of sacrifice, and nothing can compensate for the invaluable service rendered to science and to society. Anatomy and medicine owe these individuals a tremendous debt of gratitude. By bequeathing their bodies, they enable students to learn through observation—even now, at the beginning of the twenty-first century, there is no substitute for this. Even beyond death, these altruistic people help the living—students, physicians, and patients alike. This is how the above inscription should be interpreted, and students should endeavor to be worthy of these voluntary and generous donations by respecting the dead as well as by working hard and learning eagerly.

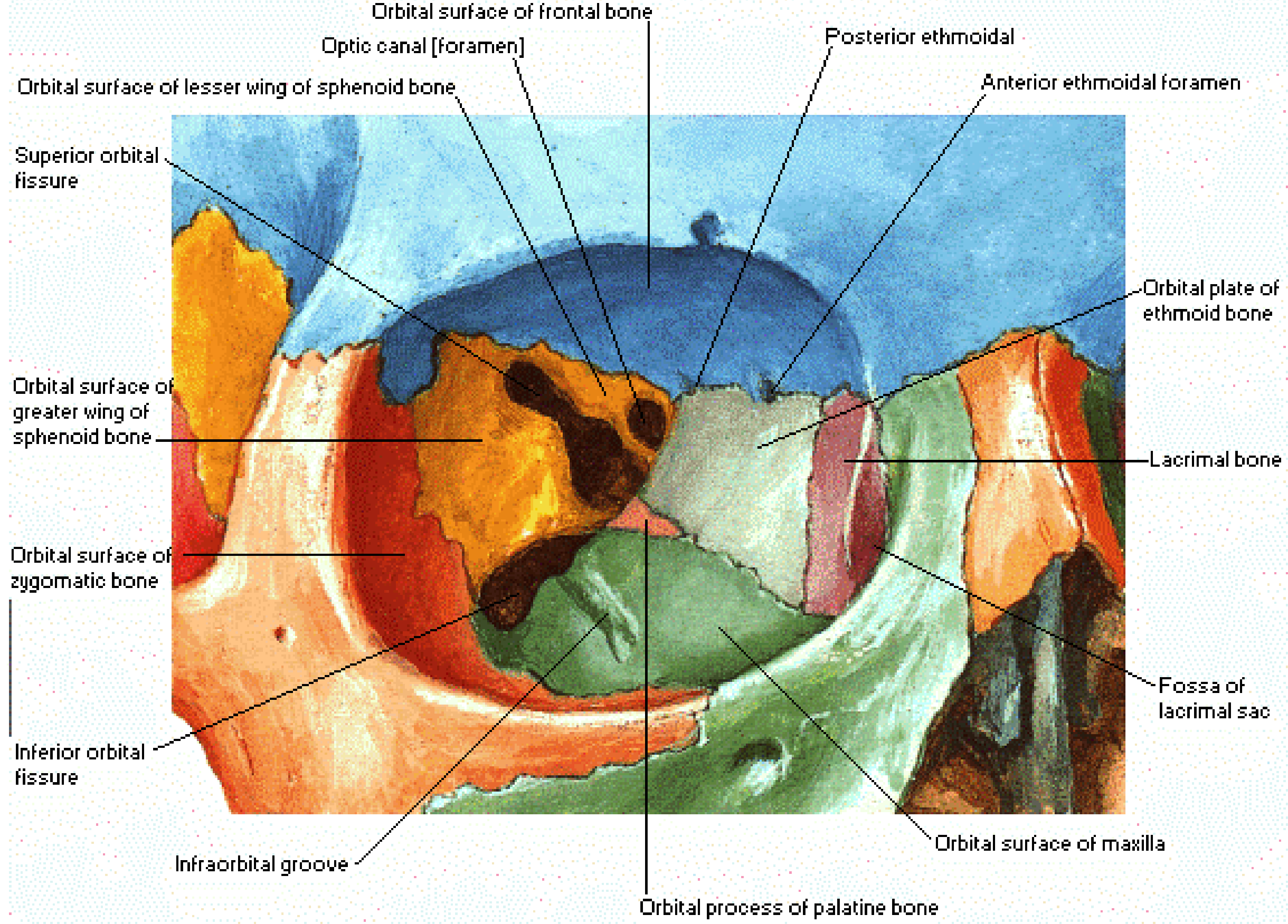
Skull

Anterior View



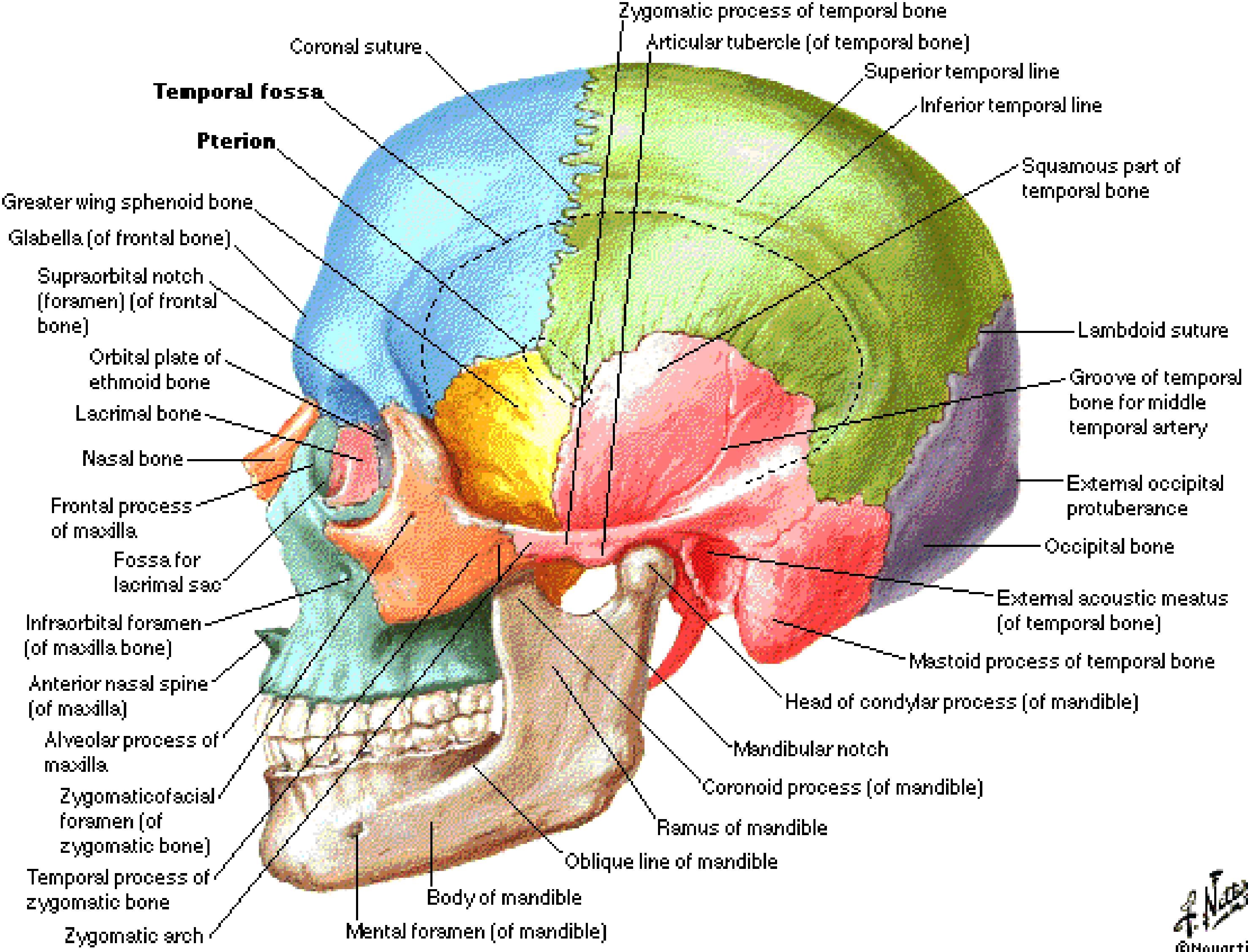
Right Orbit

Frontal and Slightly Lateral View



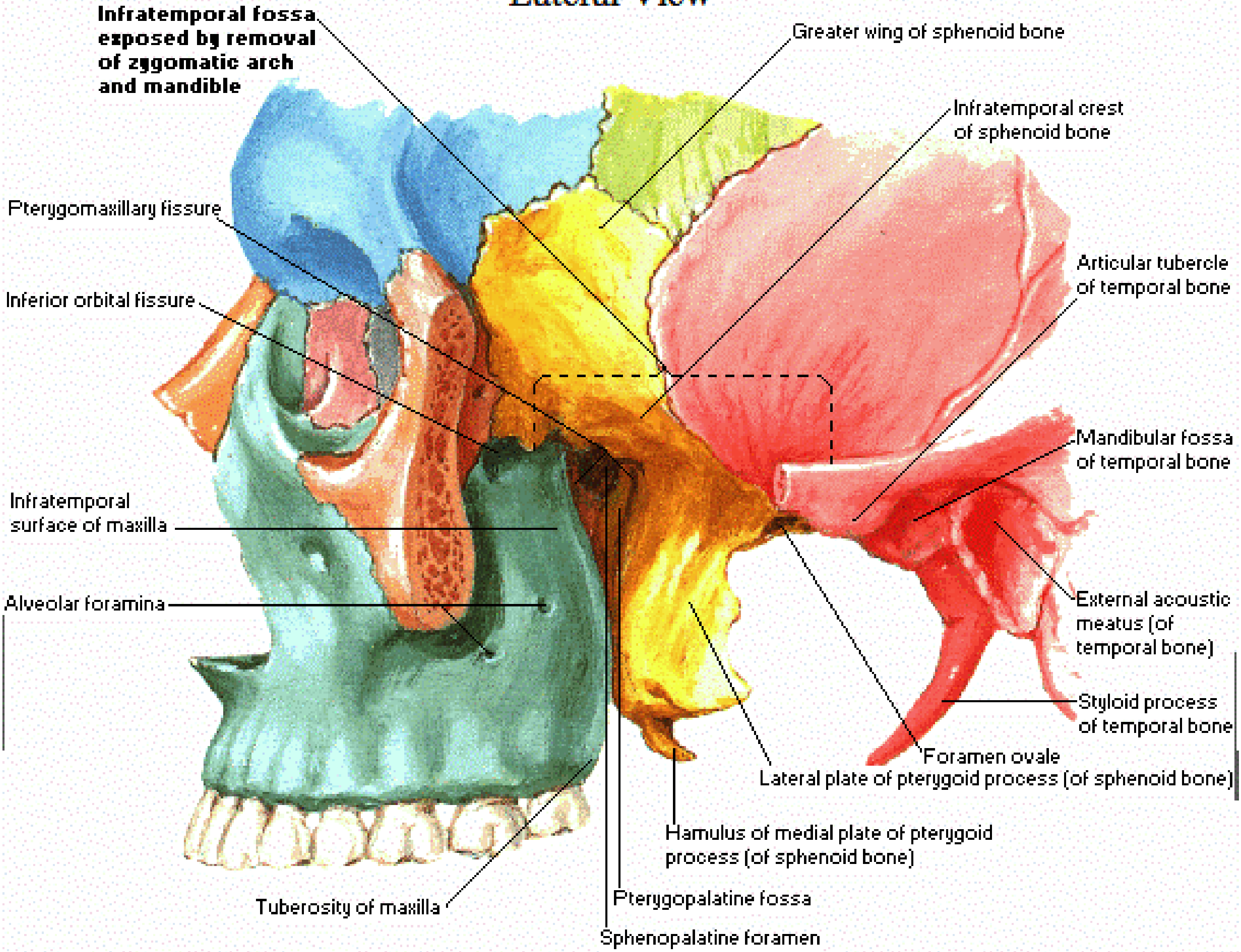
Skull

Lateral View



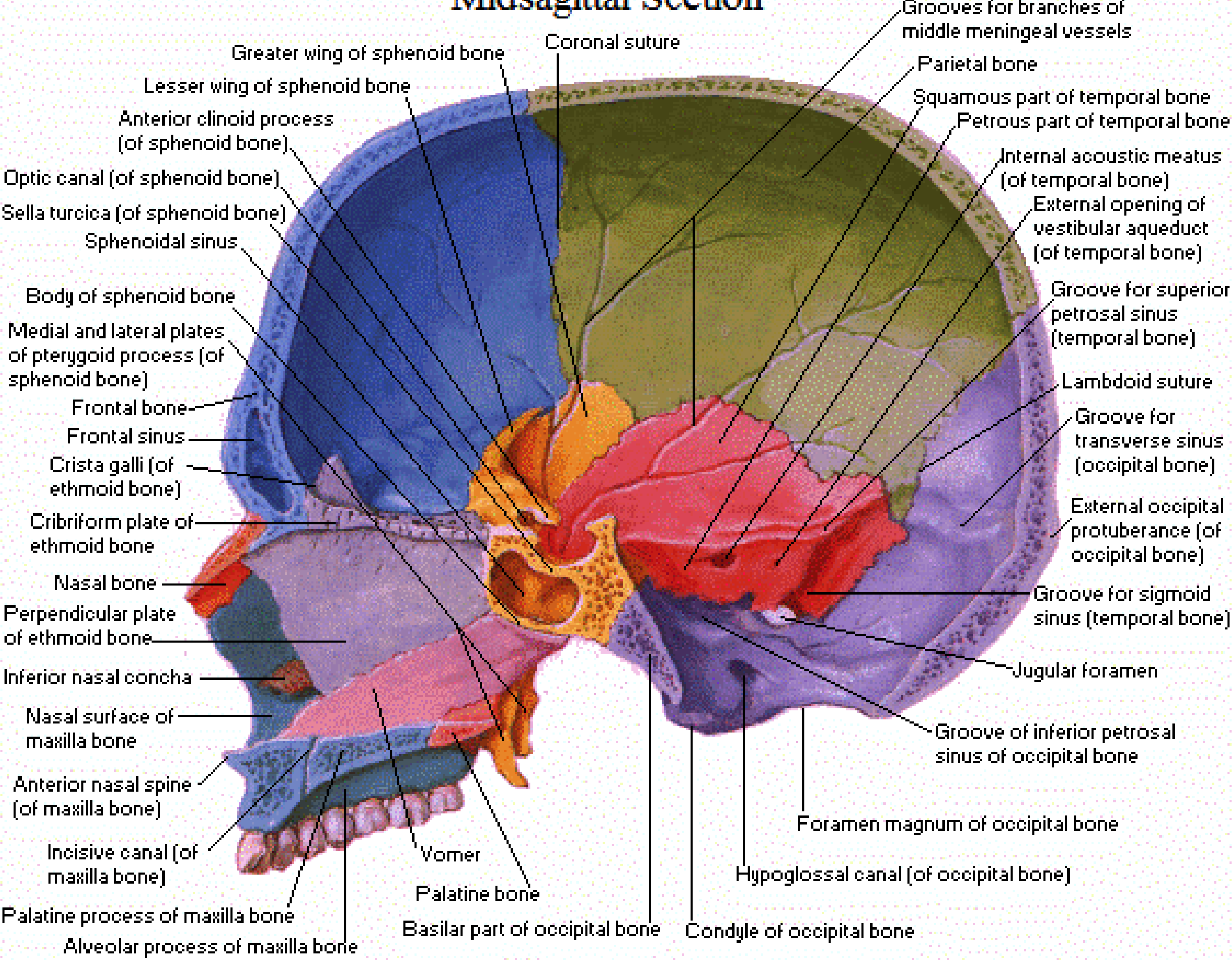
Skull - Infratemporal Fossa Exposed

Lateral View



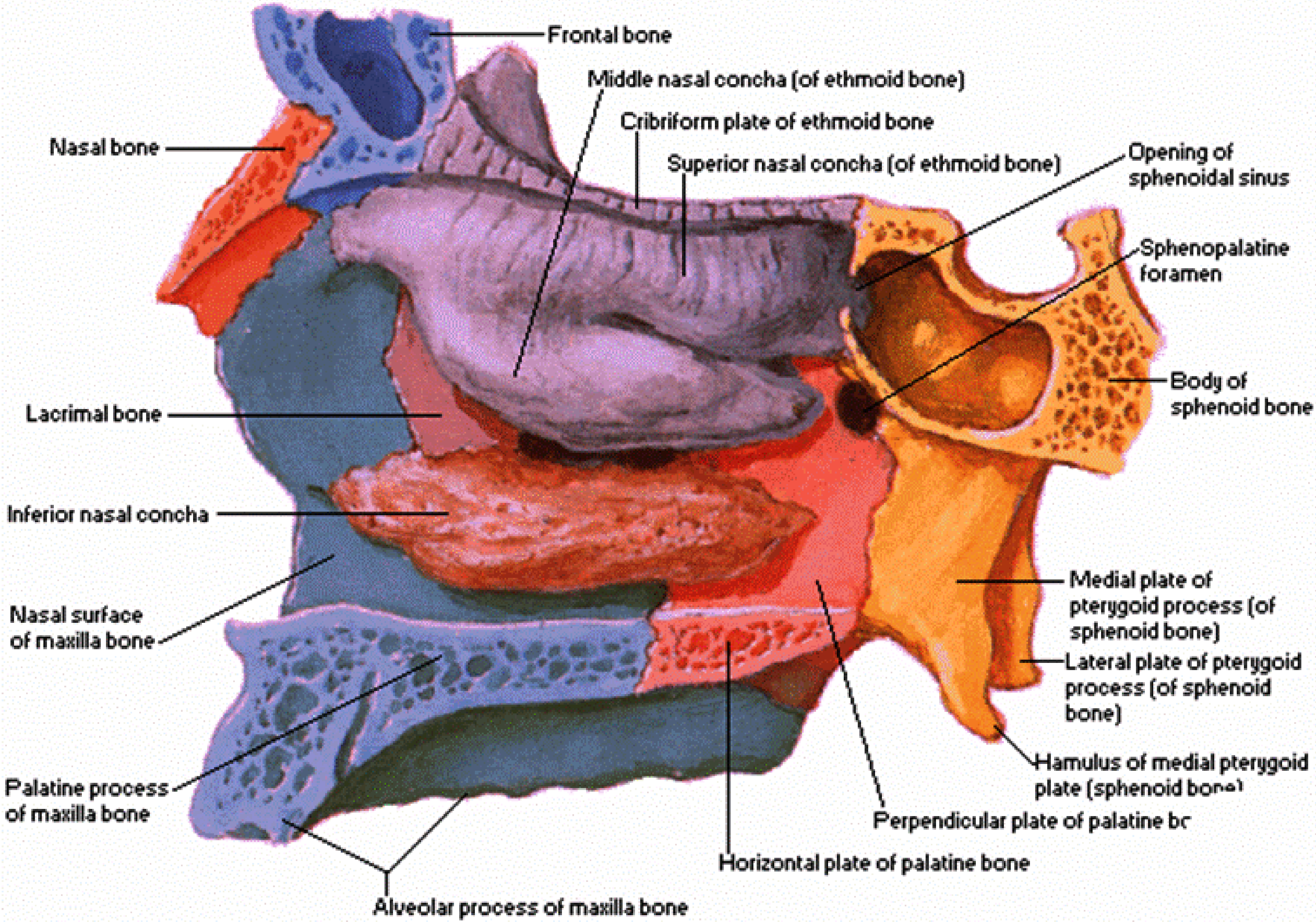
Skull

Midsagittal Section



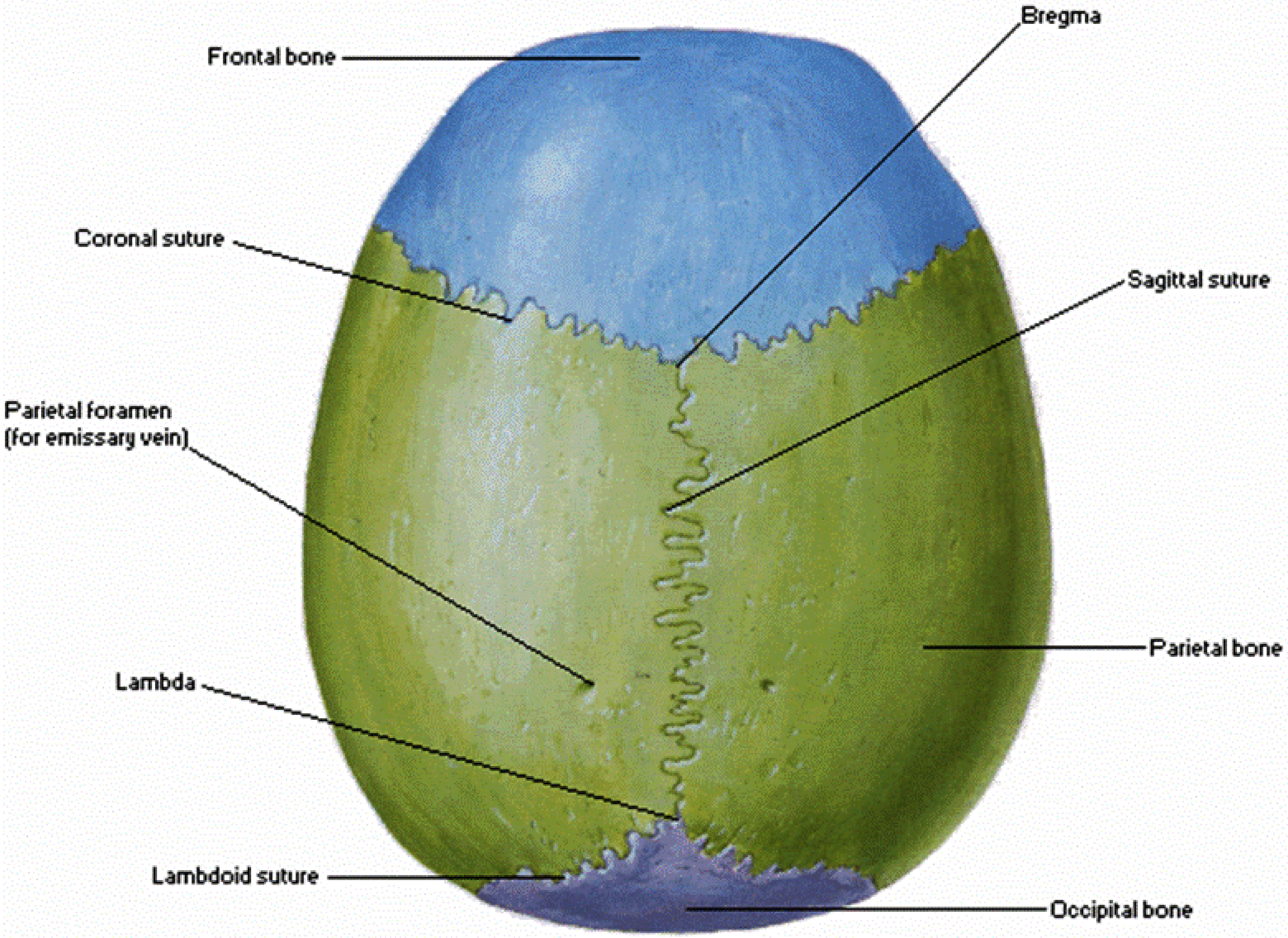
Skull - Nasal Conchae Exposed

Sagittal Section



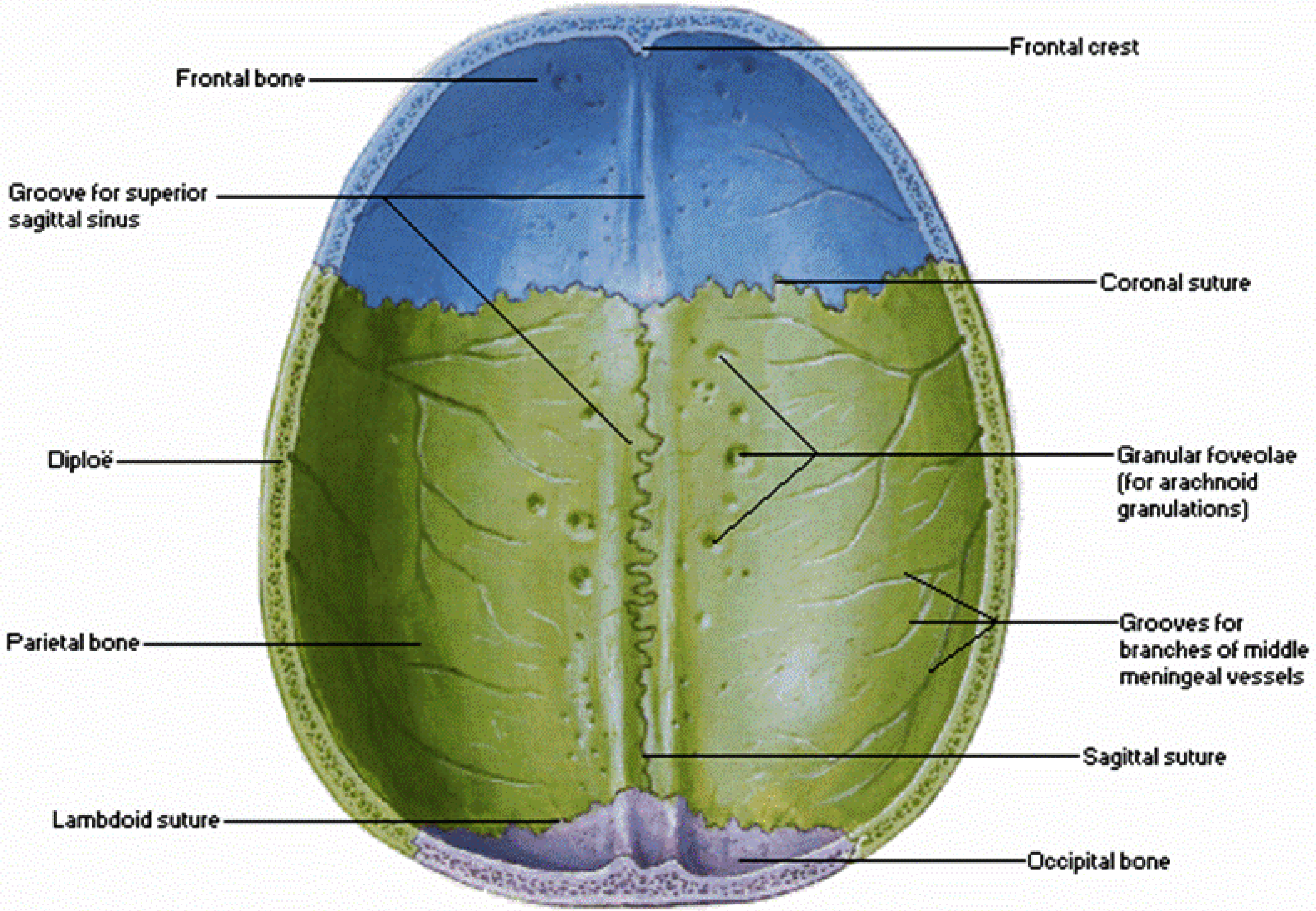
Calvaria

Superior View



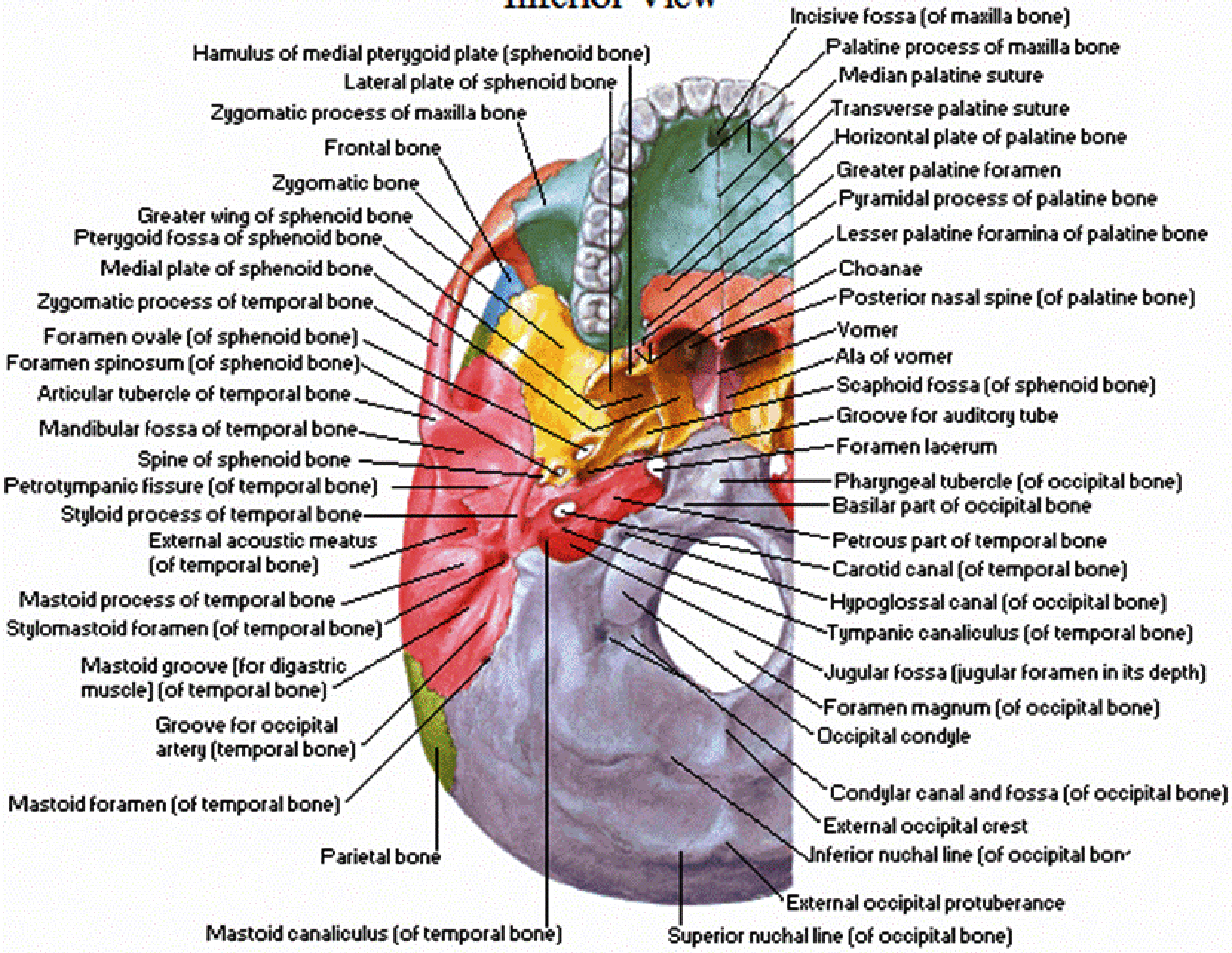
Calvaria

Inferior View



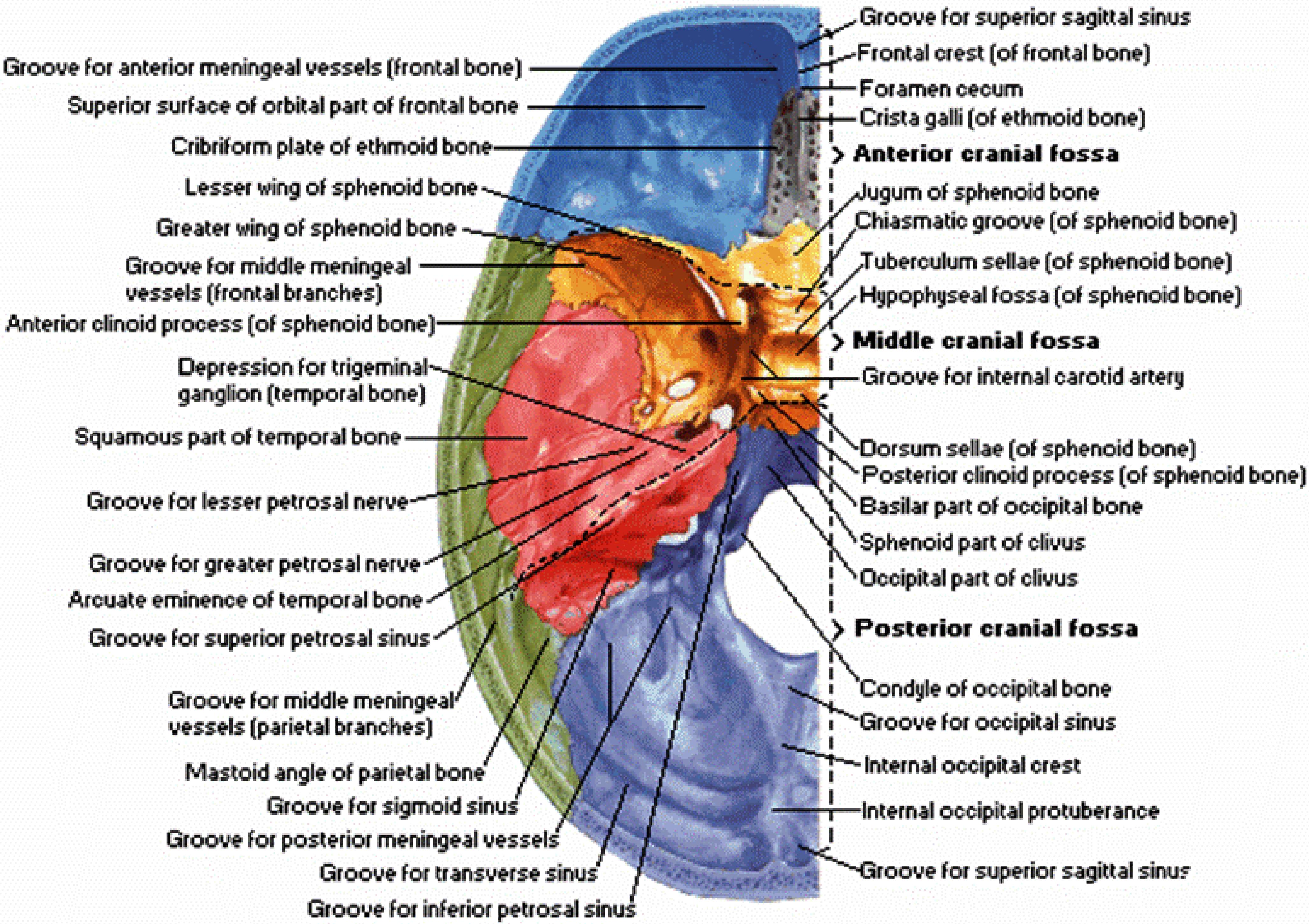
Cranial Base

Inferior View



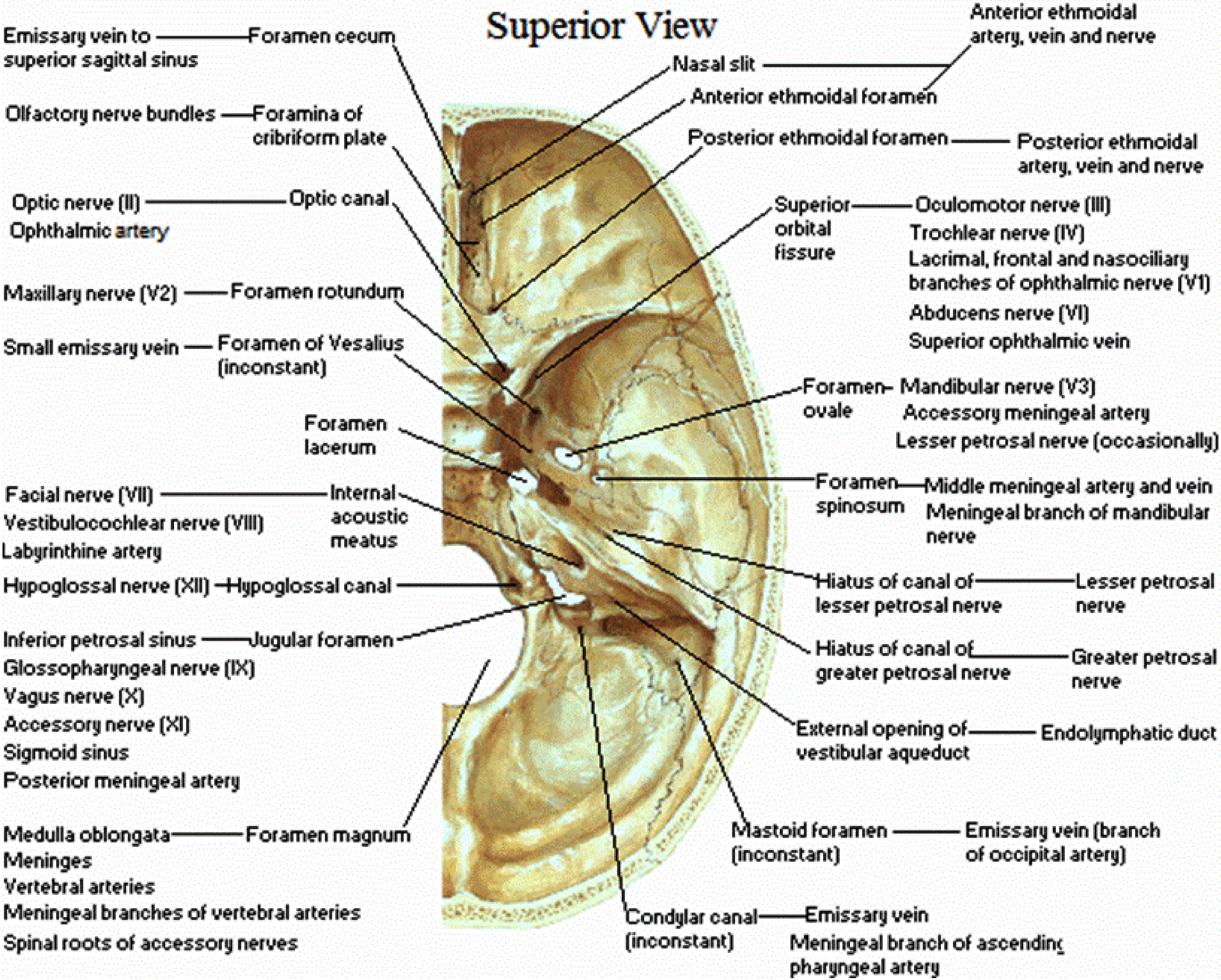
Bones of Cranial Base

Superior View



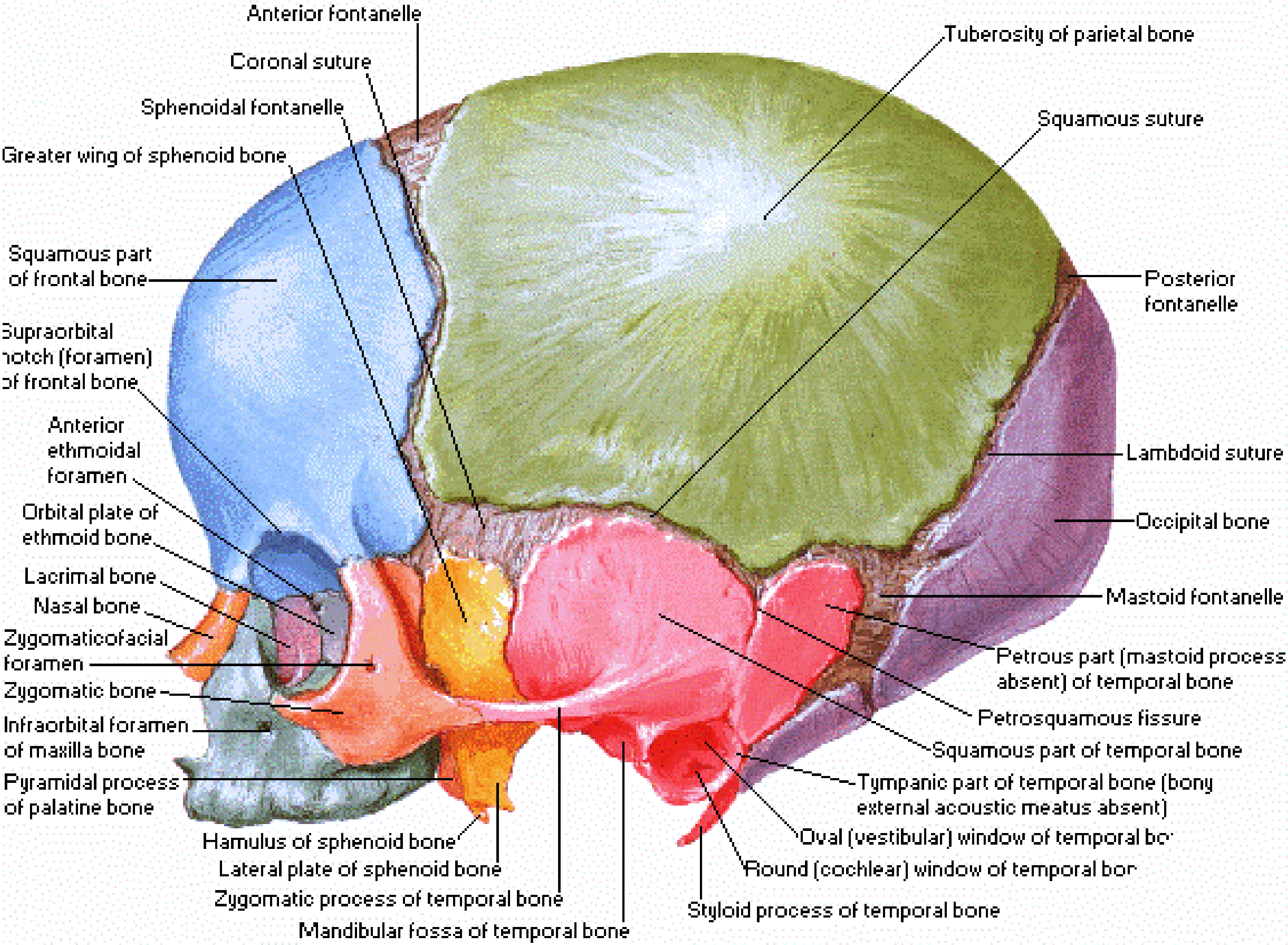
Foramina of Cranial Base

Superior View



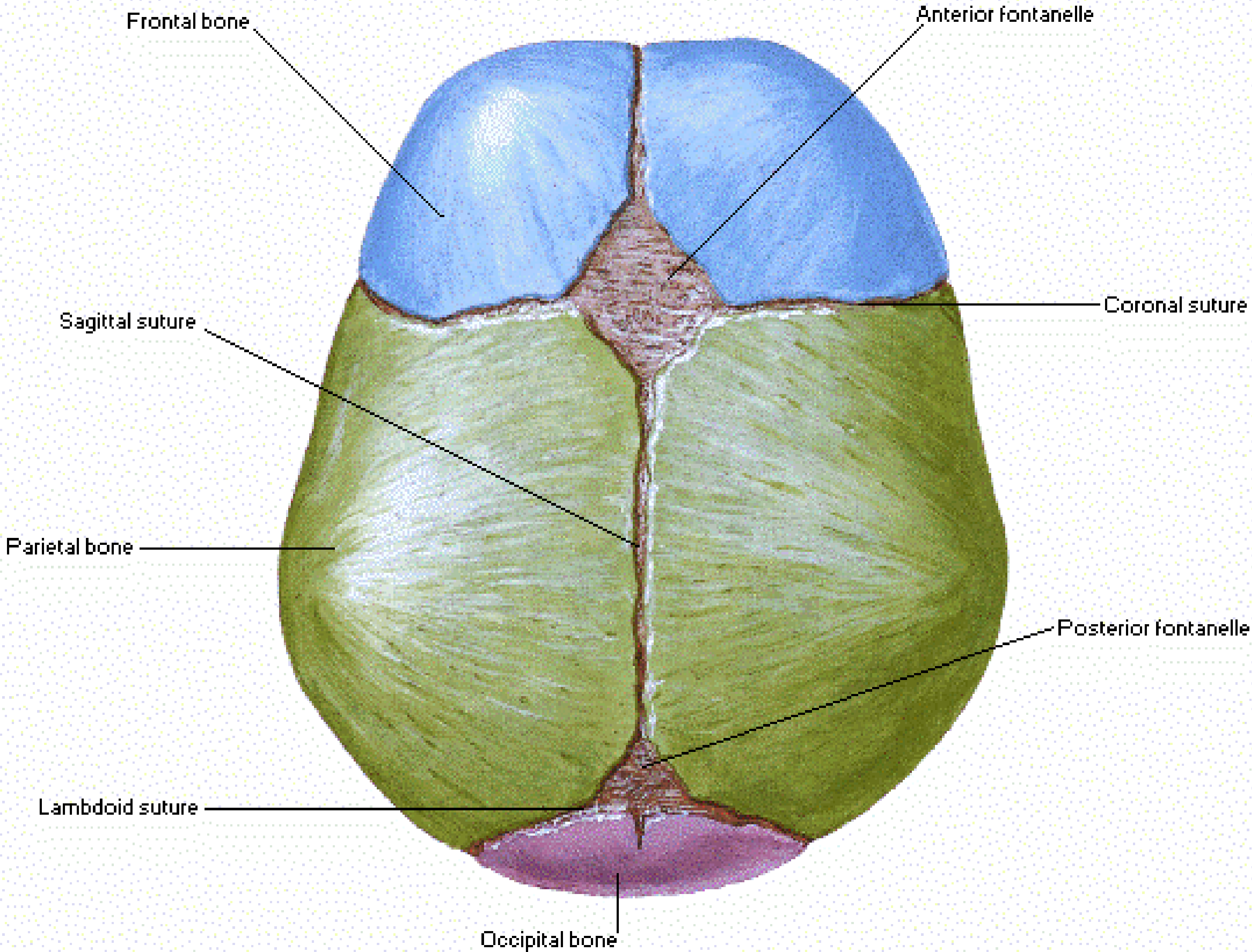
Skull of Newborn

Lateral View



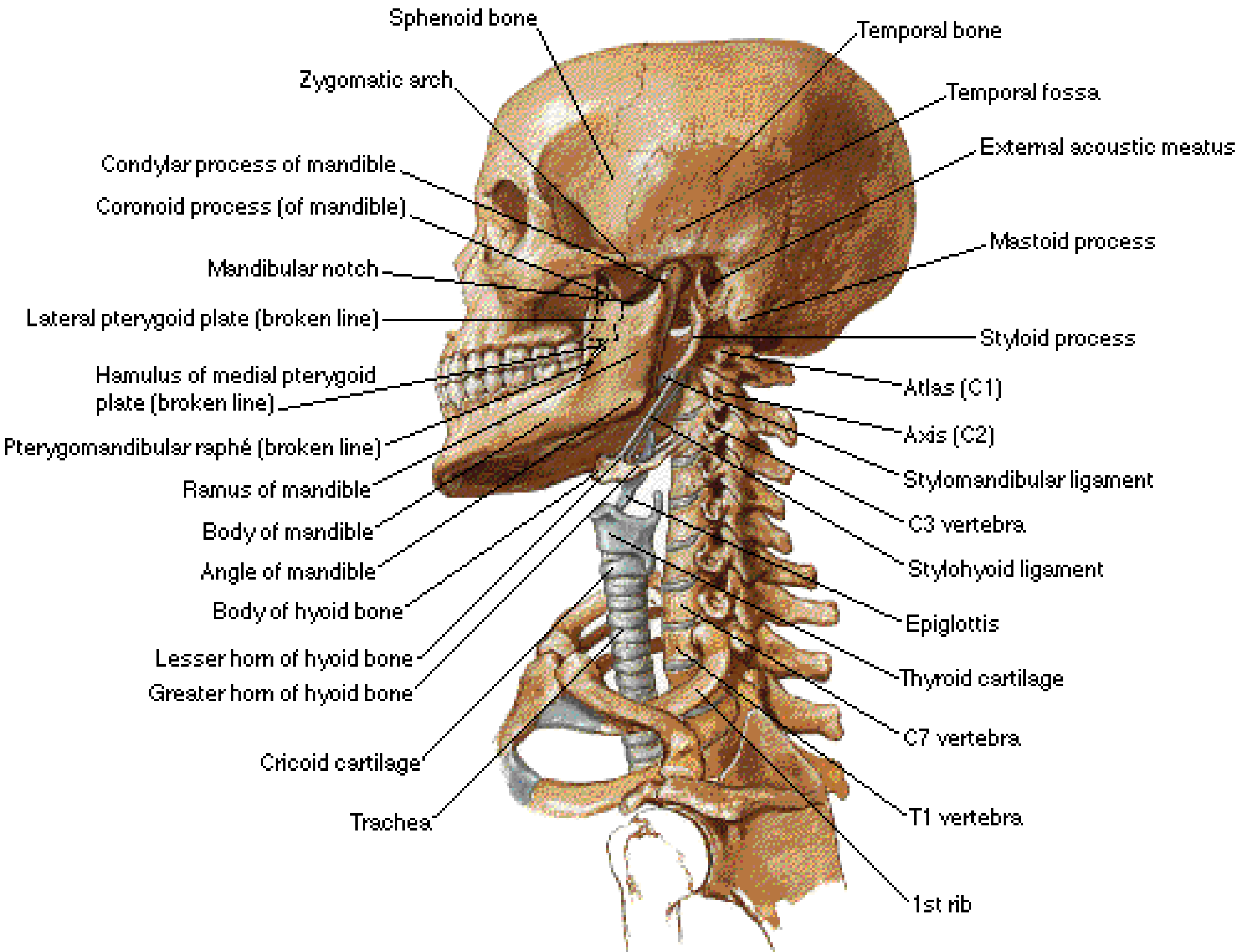
Skull of Newborn

Superior View



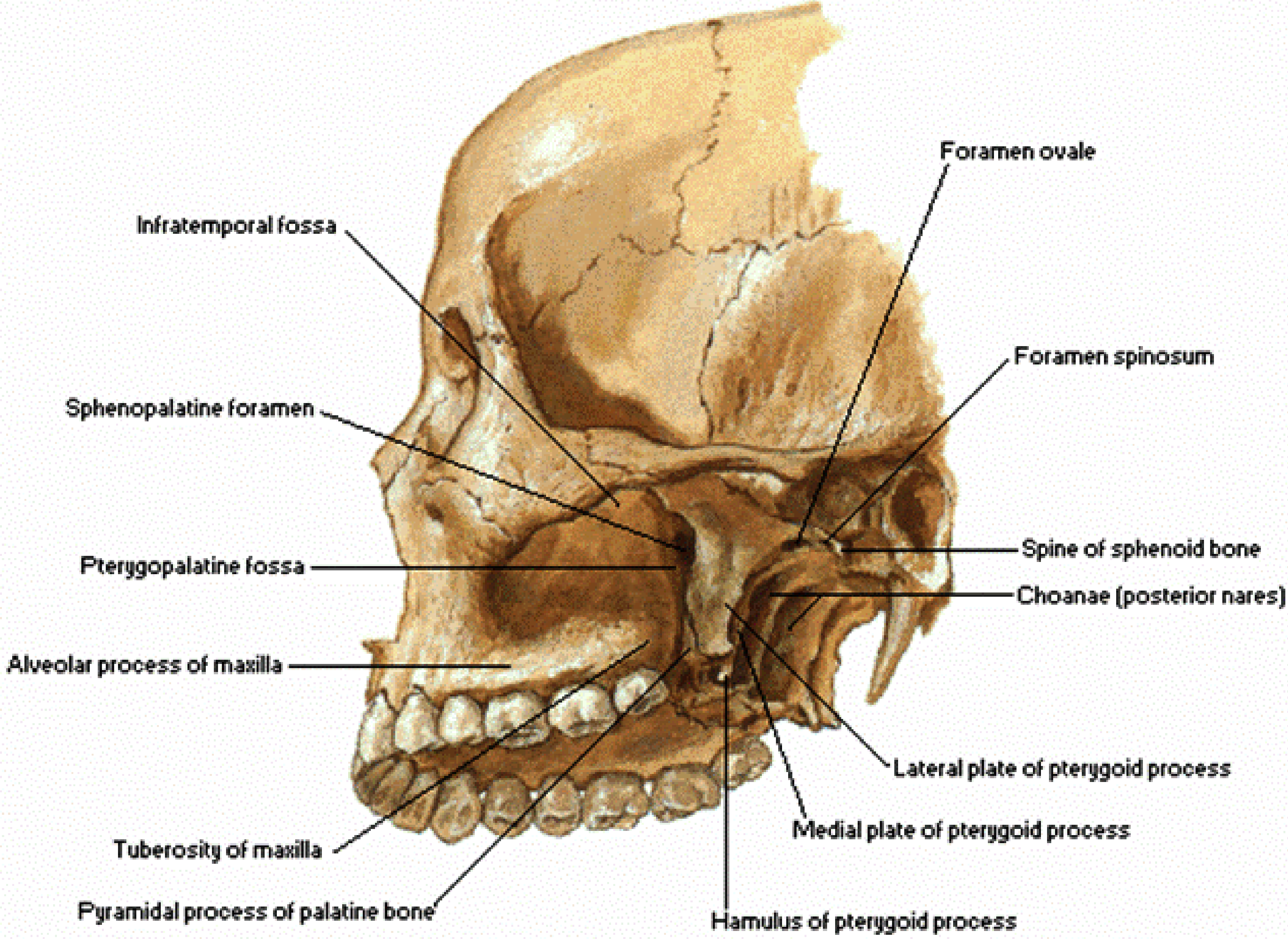
Bony Framework of Head and Neck

Lateral View



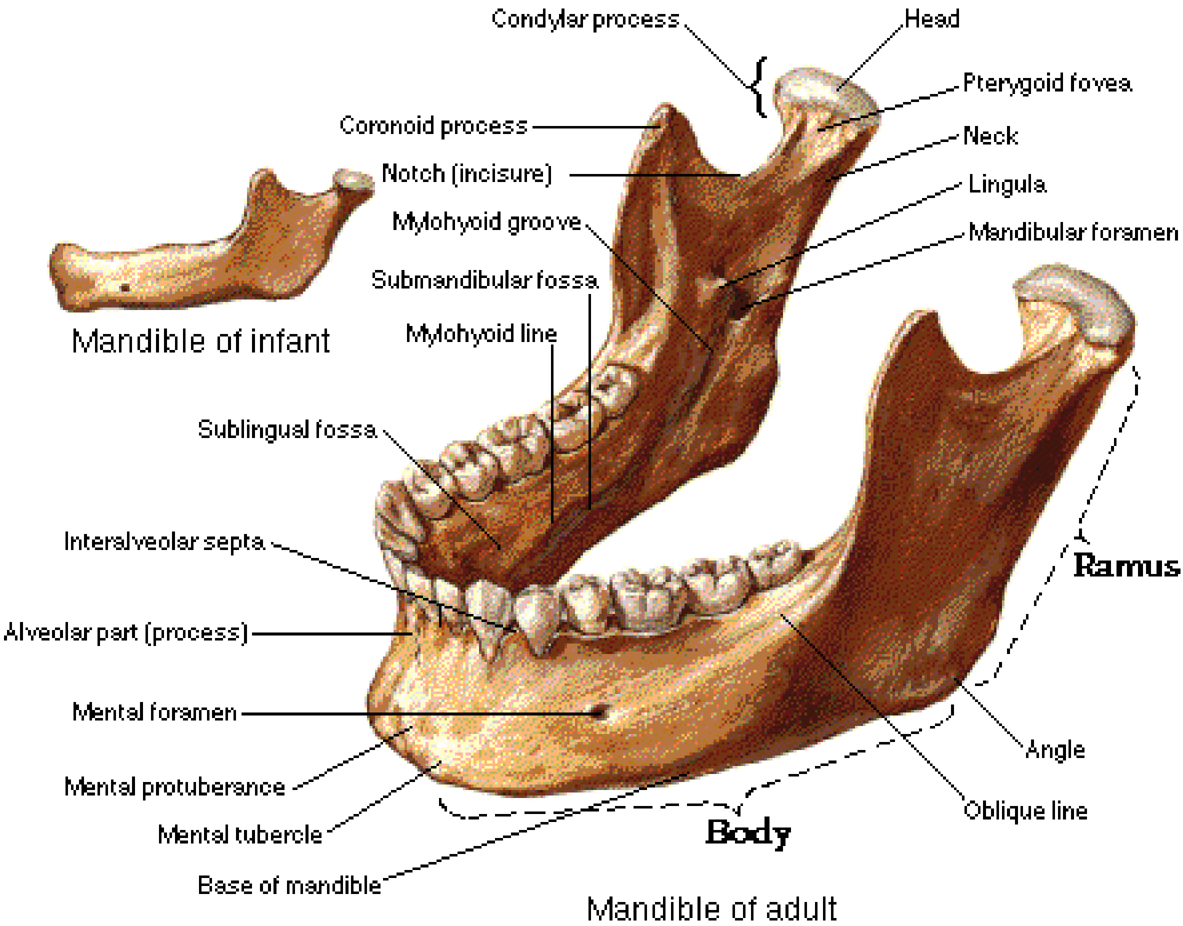
Bony Framework of Head - Mandible Removed

Lateral View



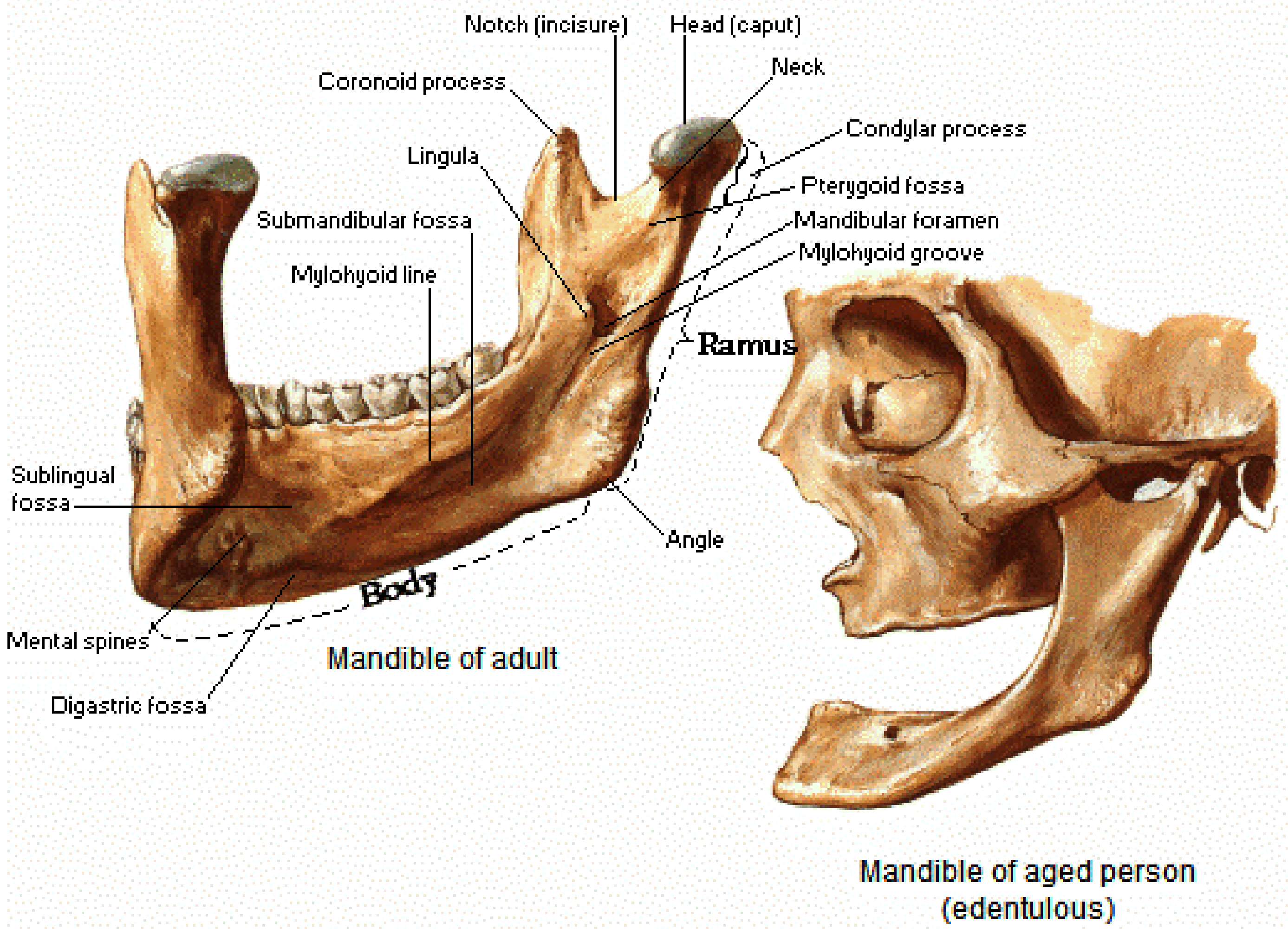
Mandible

Anterolateral Superior View



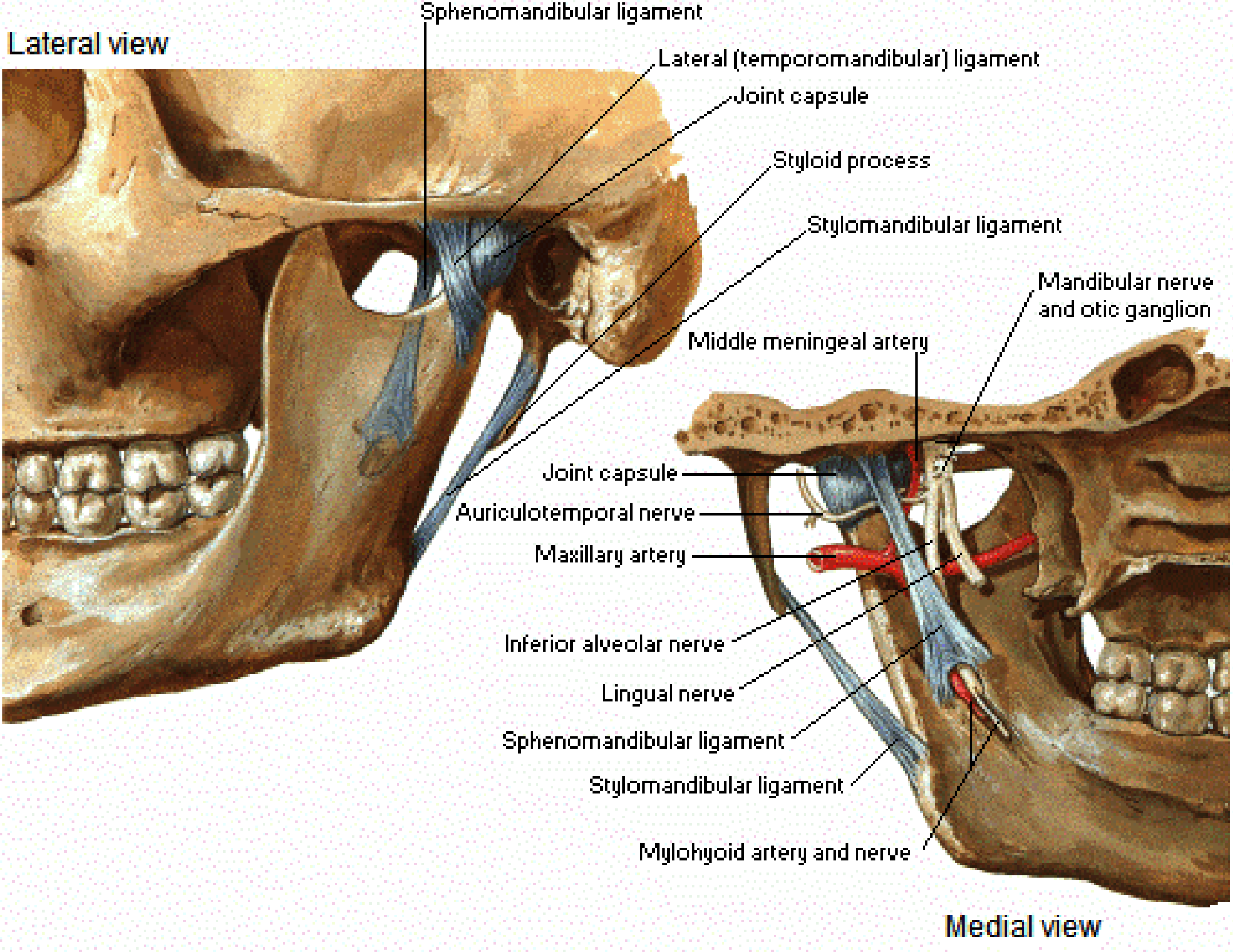
Mandible

Left Posterior View



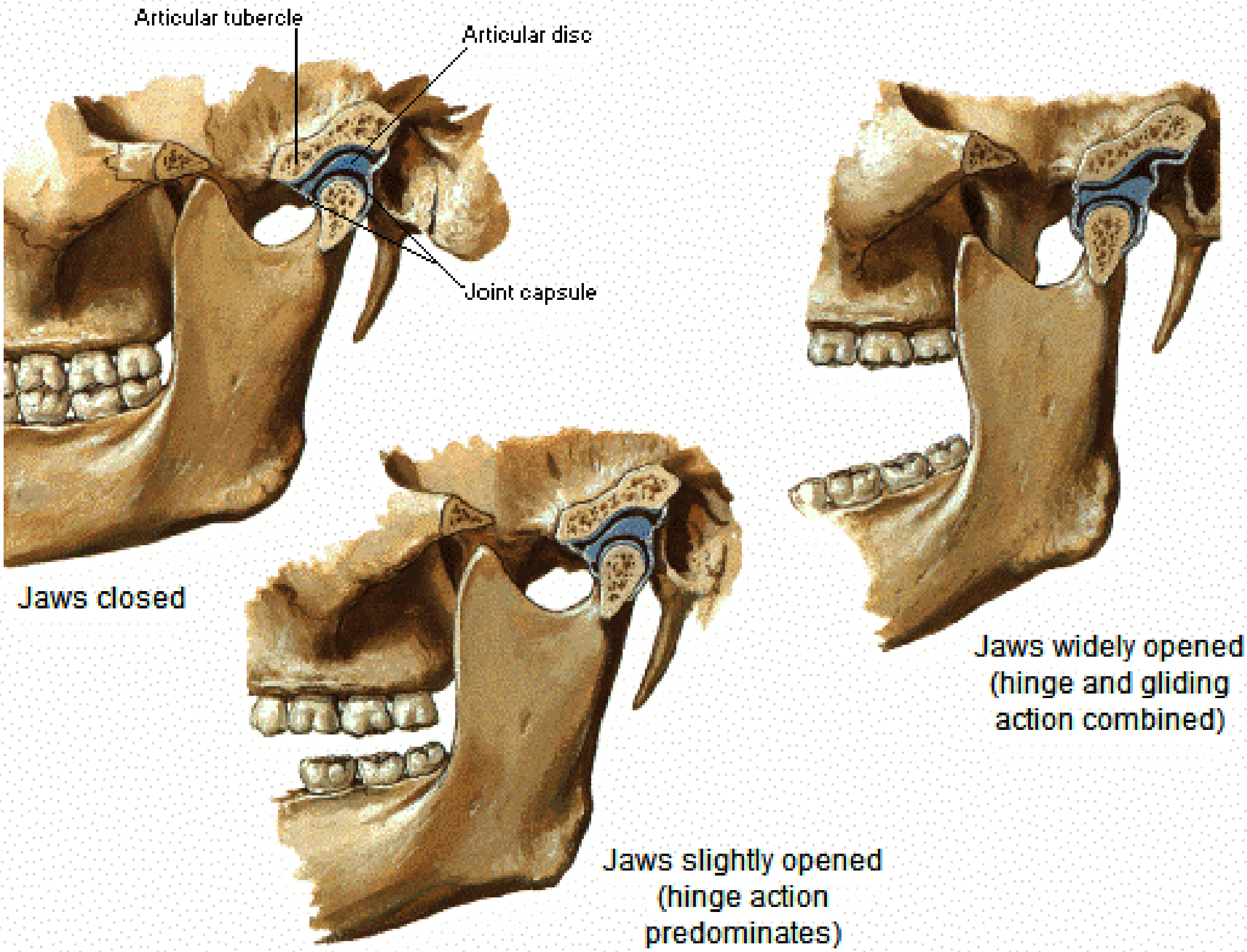
Temporomandibular Joint

Lateral and Medial Views



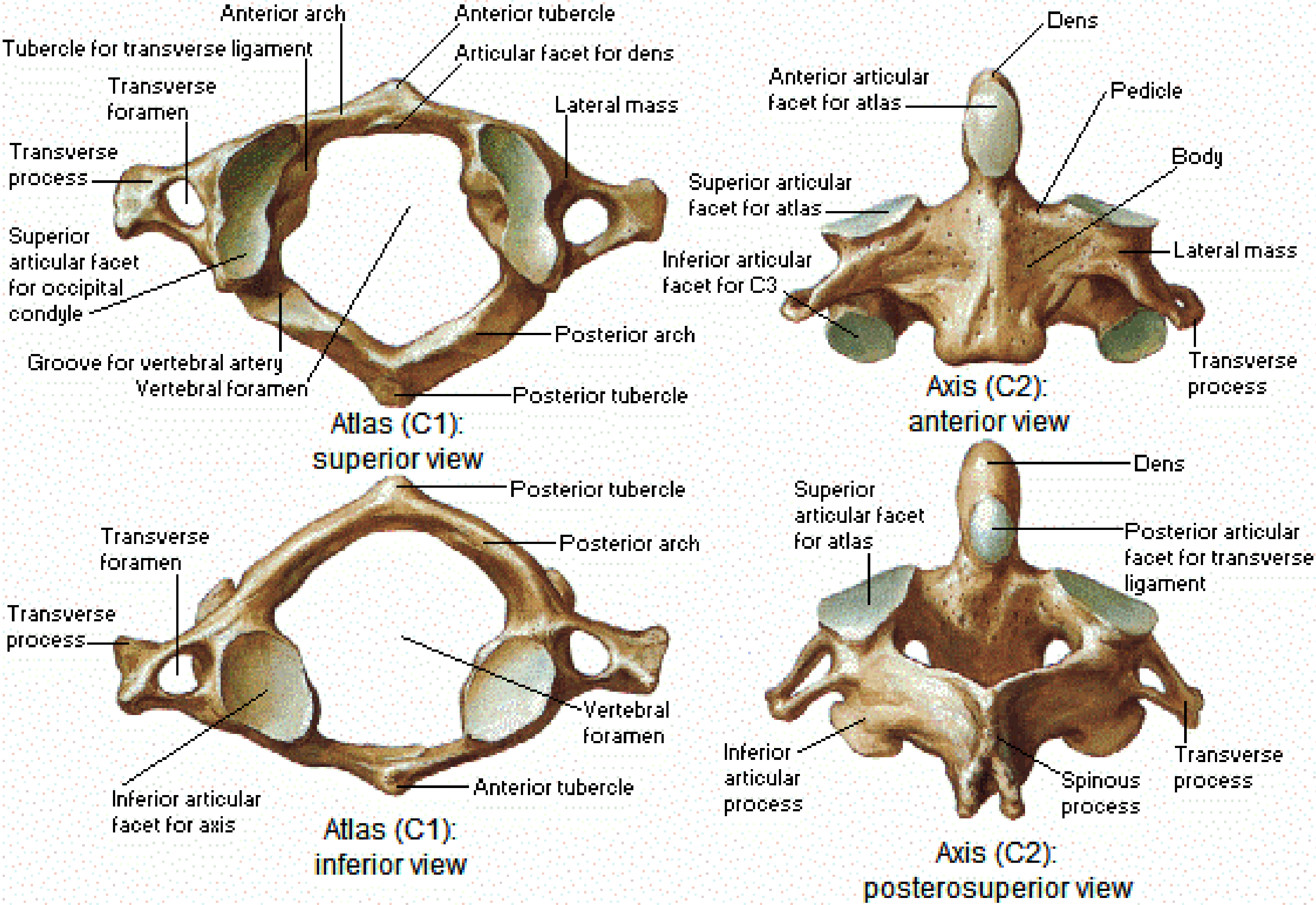
Temporomandibular Joint

Joint Action



Cervical Vertebrae

Atlas and Axis



Atlas (C1): superior view

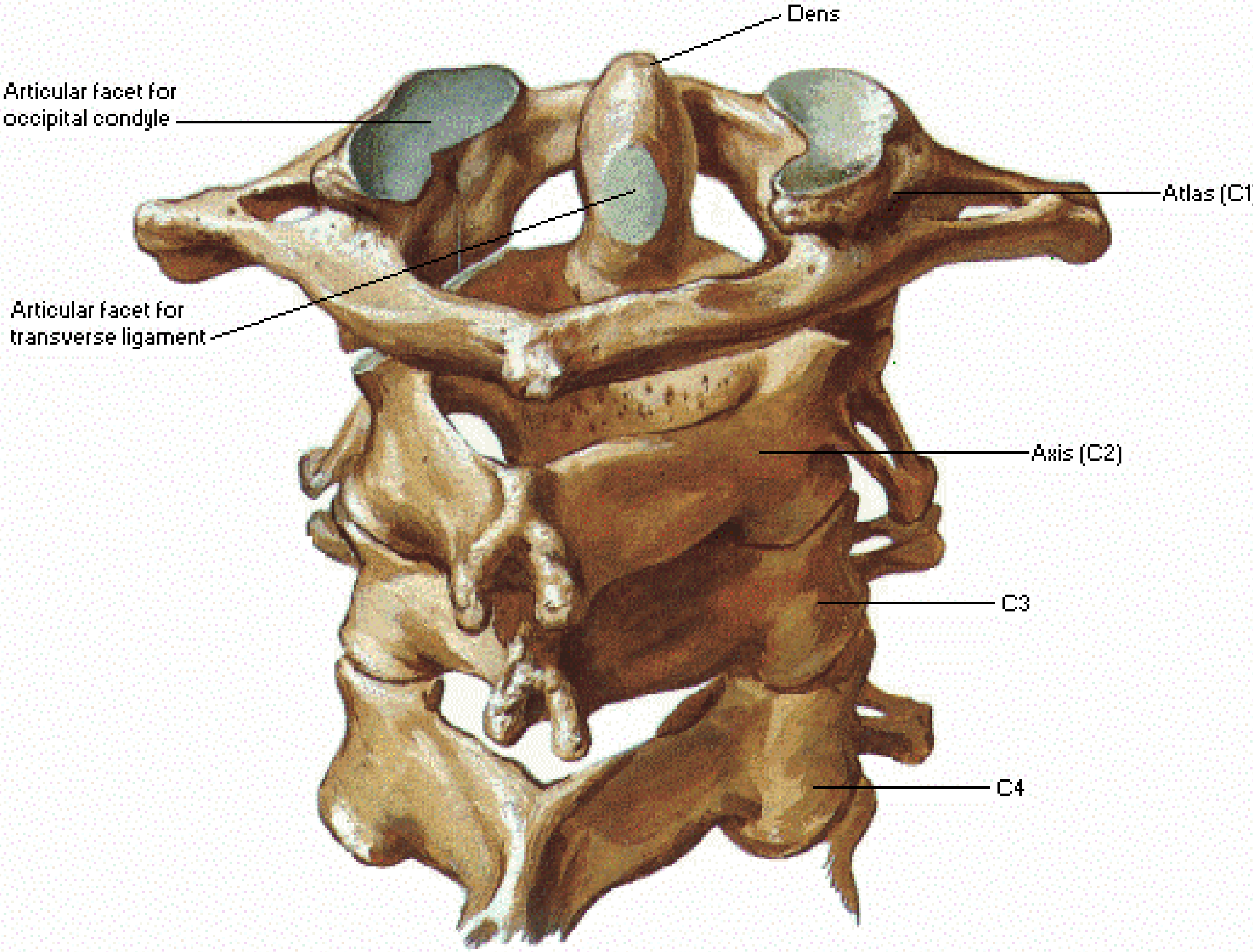
Axis (C2): anterior view

Atlas (C1): inferior view

Axis (C2): posterosuperior view

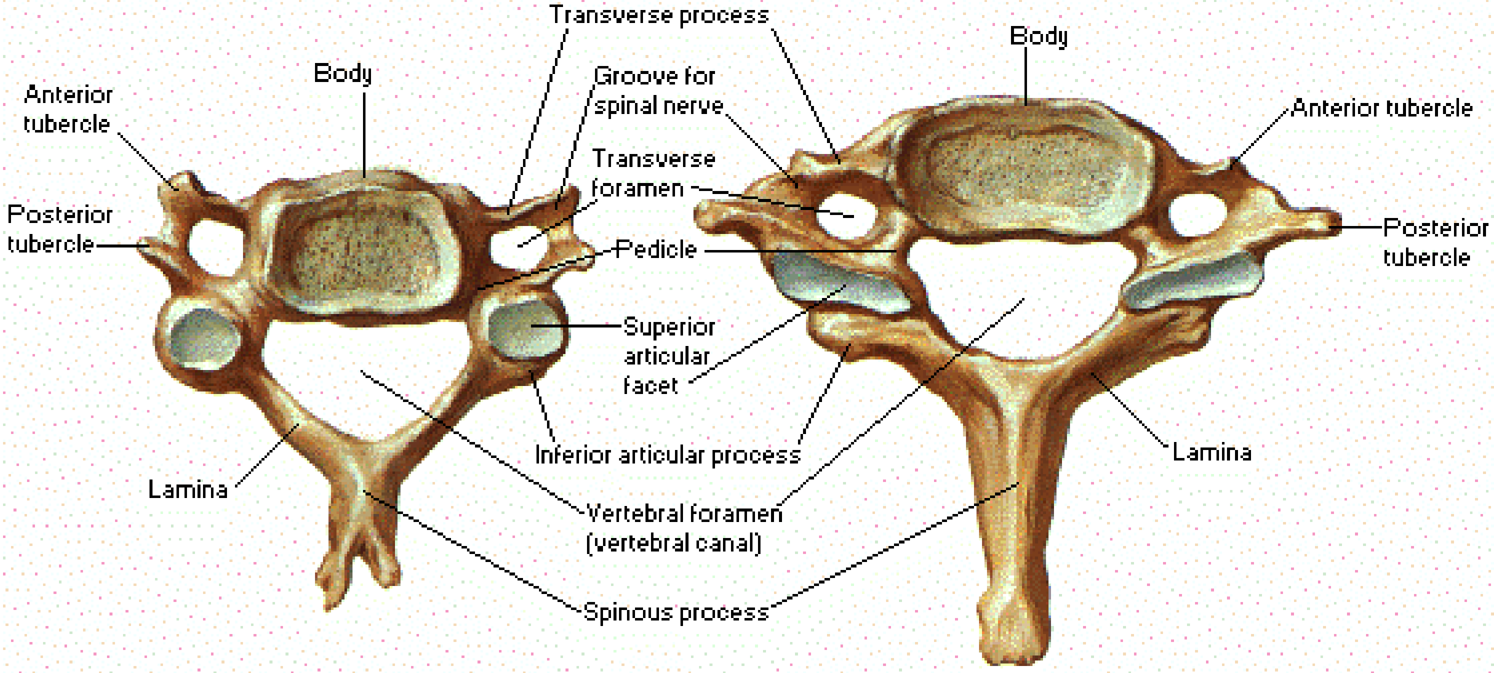
Cervical Vertebrae [C1-C4], Assembled

Posterosuperior View



Cervical Vertebrae [C4 and C7]

Superior Views

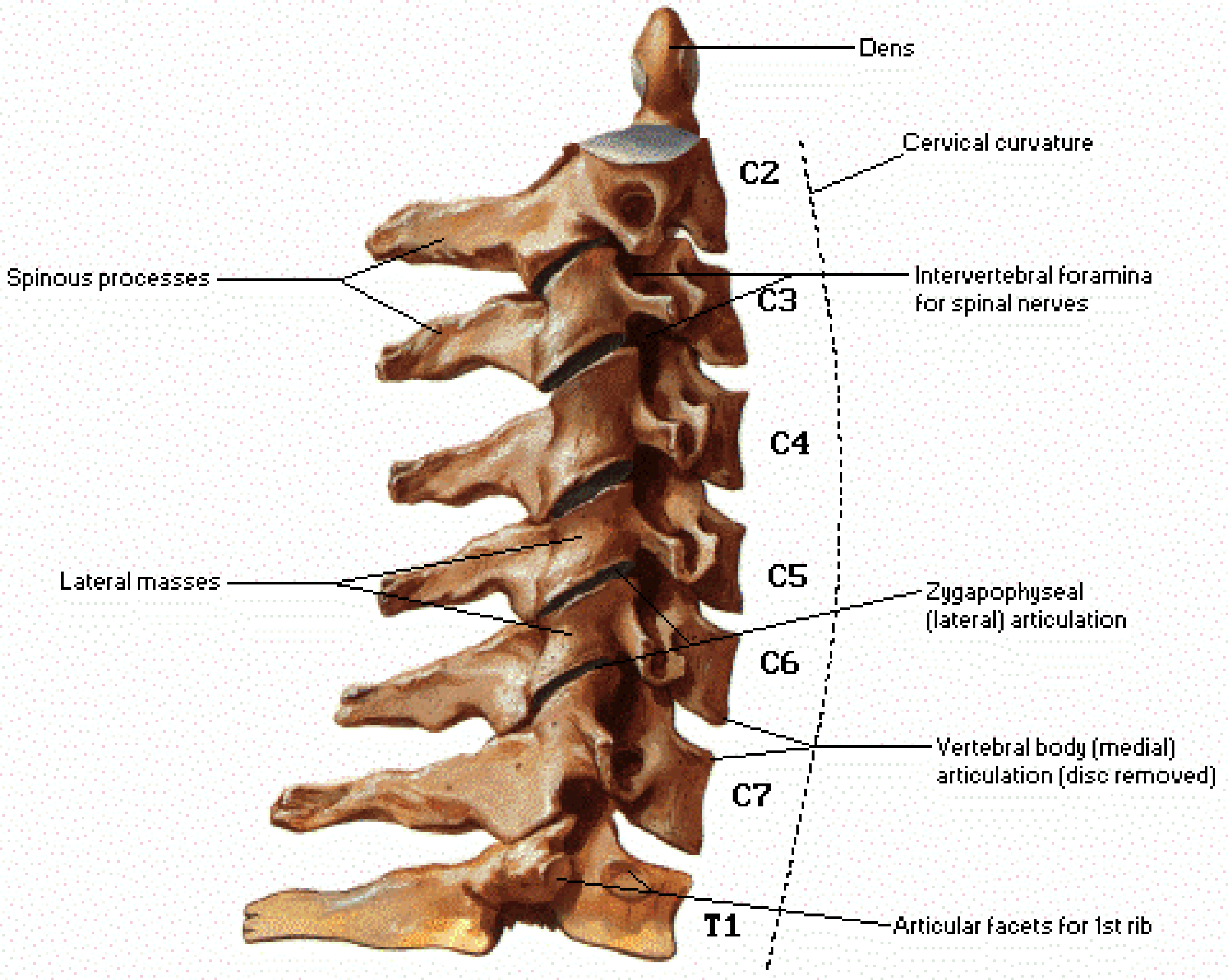


4th cervical vertebra: superior view

7th cervical vertebra: superior view

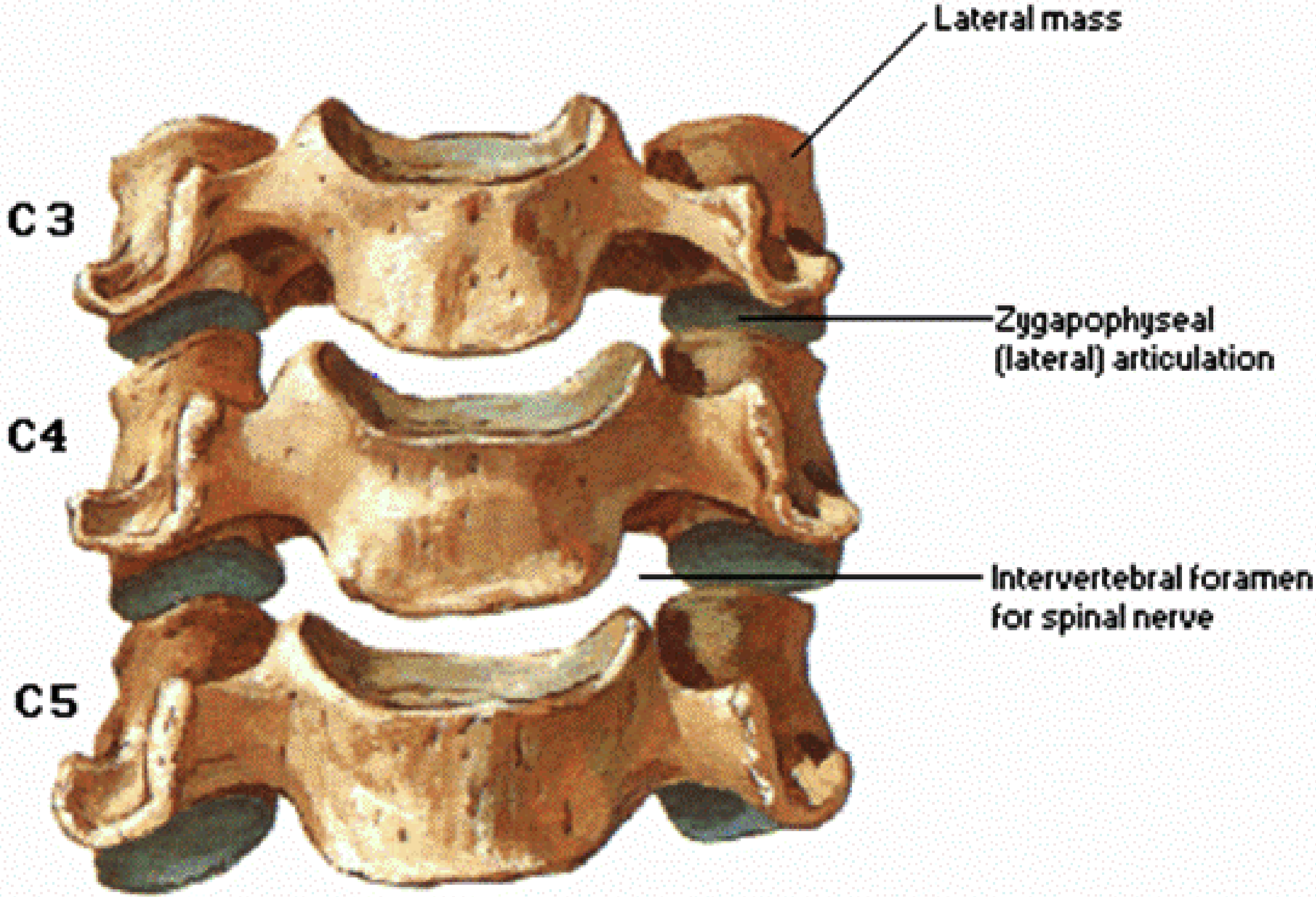
Cervical Vertebrae [C2-T1], Assembled

Right Lateral View



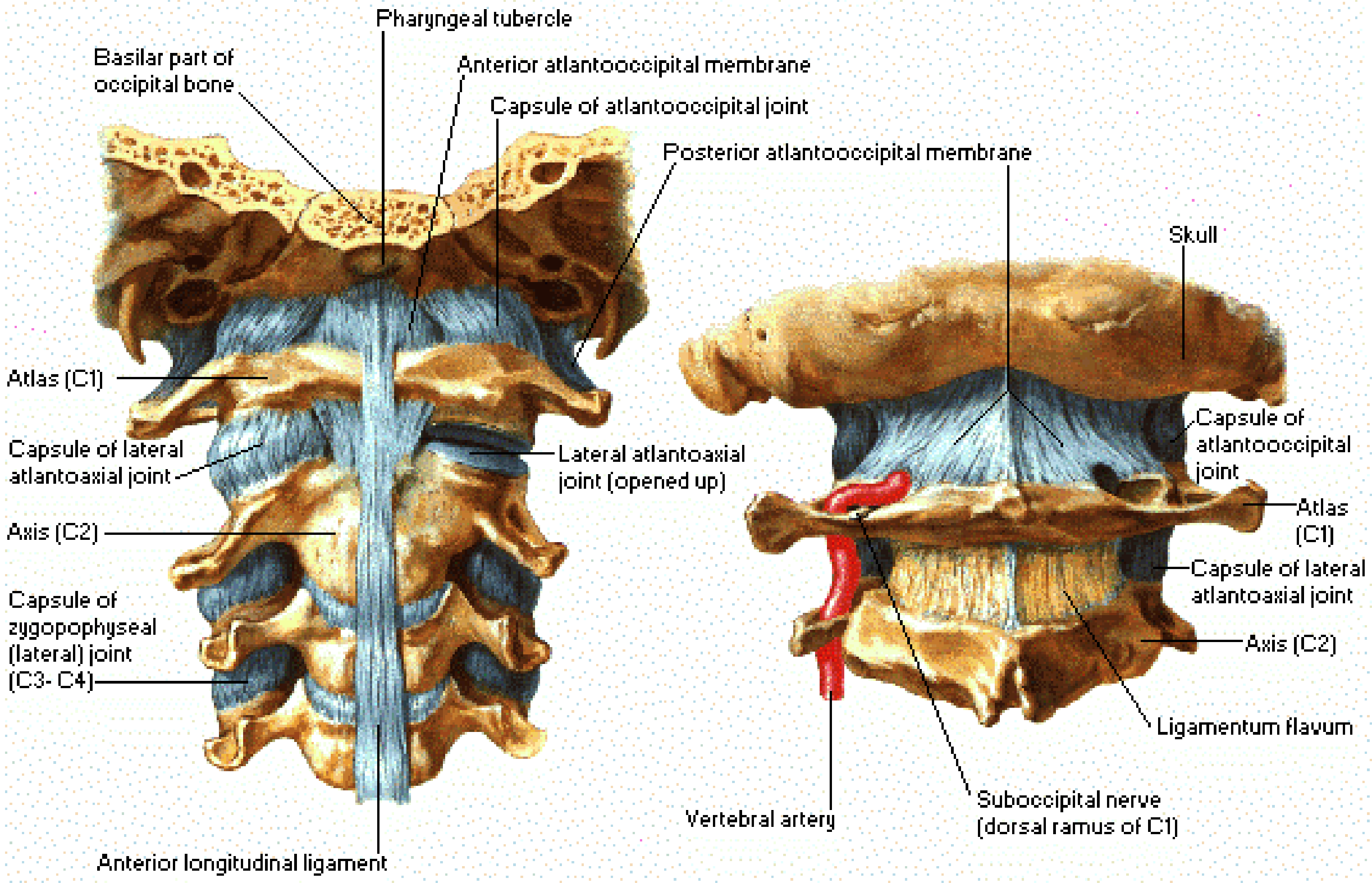
Cervical Vertebrae [C3-C5], Assembled

Anterior View



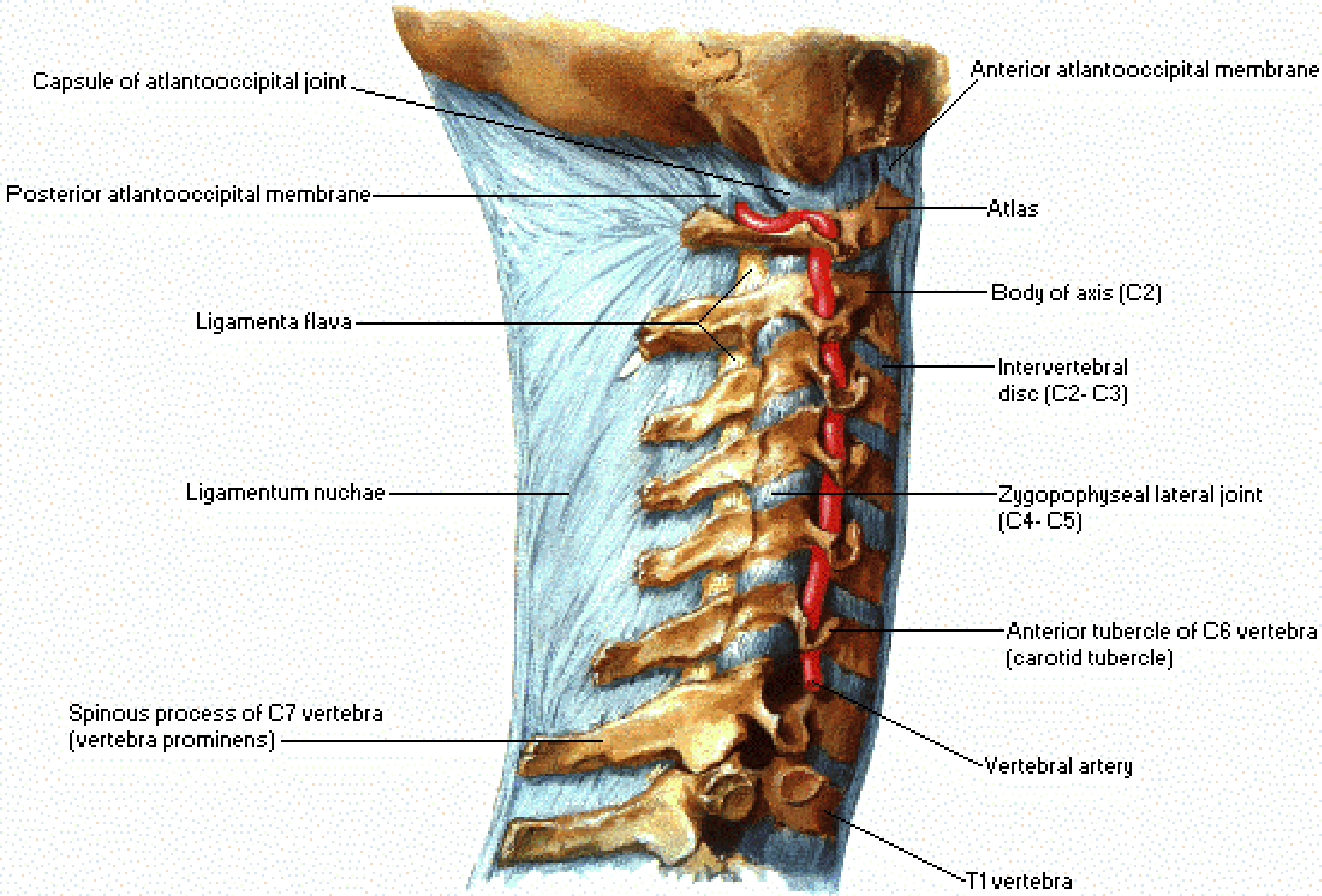
External Craniocervical Ligaments

Anterior and Posterior Views



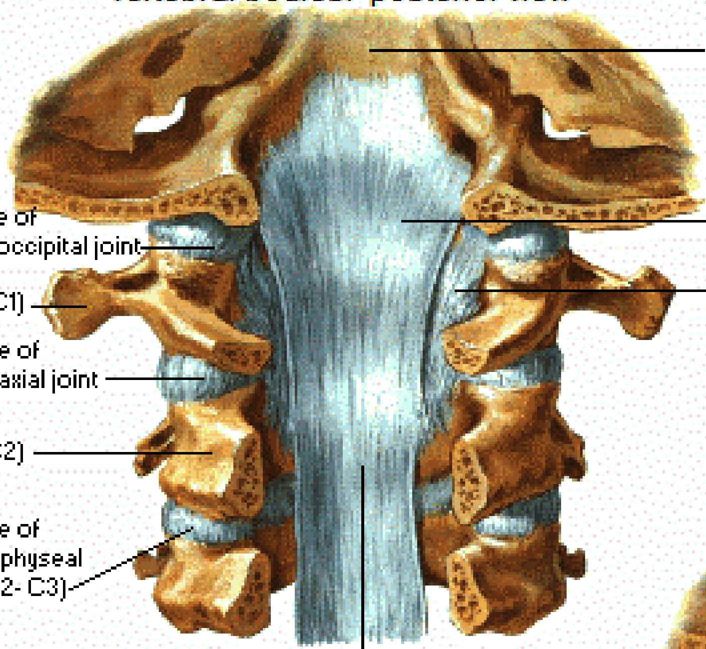
External Craniocervical Ligaments

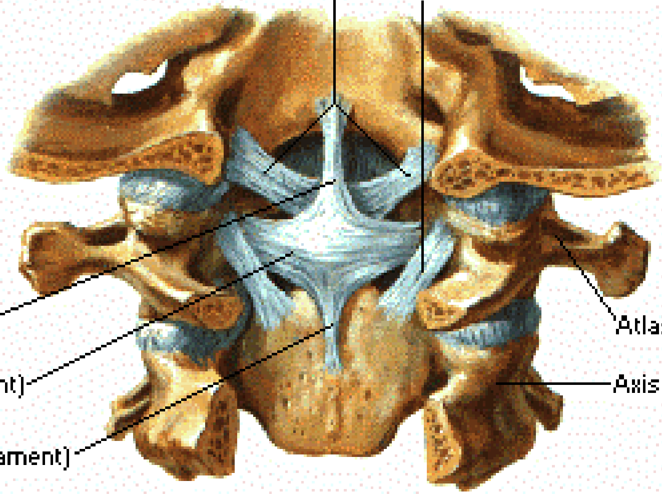
Right Lateral View



Internal Craniocervical Ligaments

Upper part of vertebral canal with spinous processes and parts of vertebral arches removed to expose ligaments on posterior vertebral bodies: posterior view

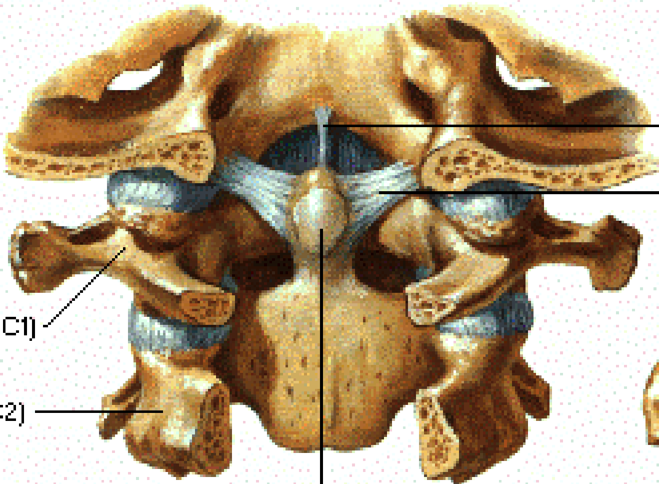


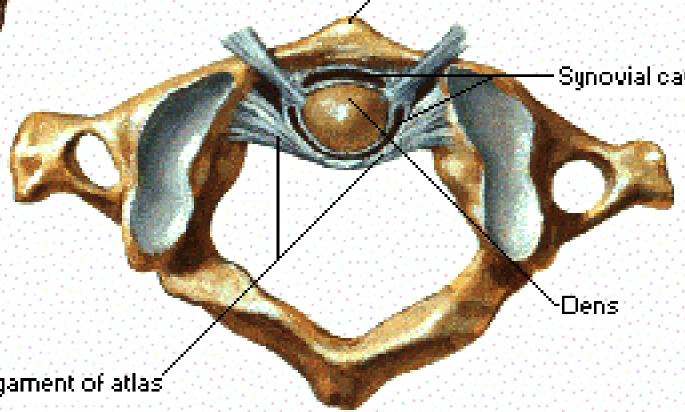


Principal part of tectorial membrane removed to expose deeper ligaments: posterior view

Internal Craniocervical Ligaments [Continued]

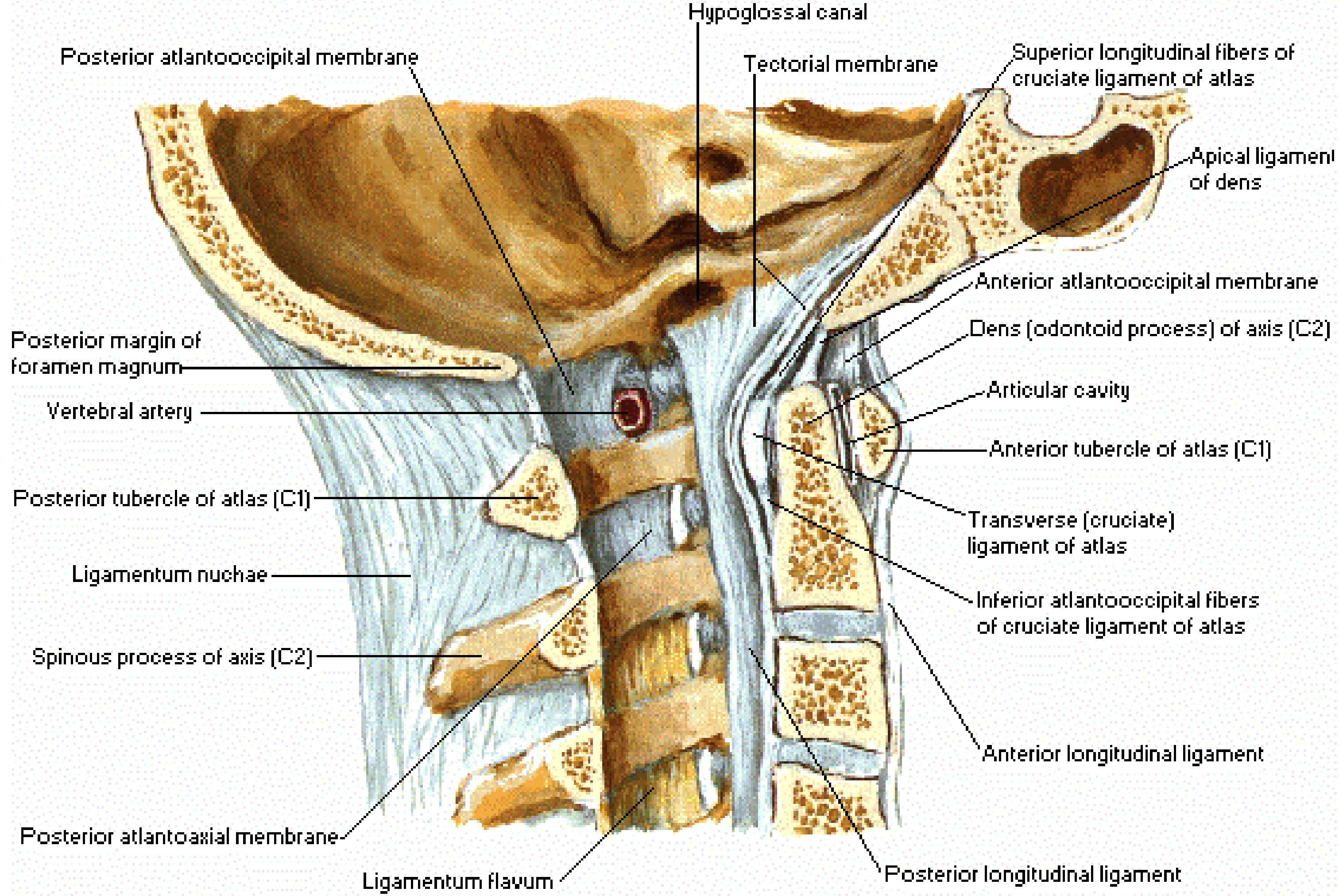
Cruciform ligament removed to show deepest ligaments: posterior view





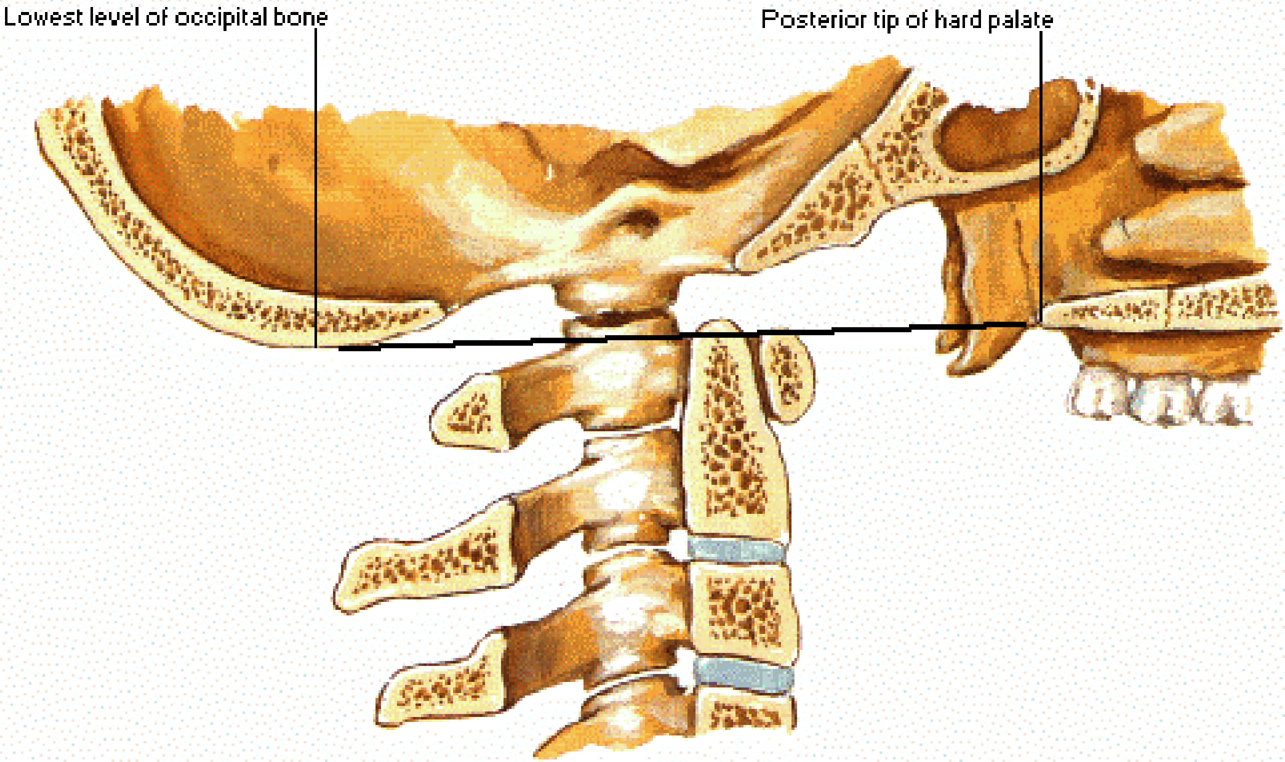
Median atlantoaxial joint: superior view

Atlantooccipital Junction



Atlantooccipital Junction

McGregor's Line

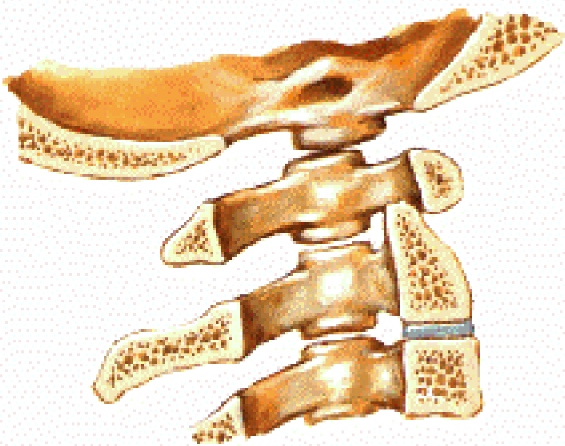


McGregor's line, from posterior tip of hard palate to lowest point of occipital bone. Average normal position of odontoid tip is 1.32 mm above this line with standard deviation of plus or minus 2.6 mm as measured on a standard lateral radiograph. Tip > 4.5 mm above line is considered to indicate basilar impression.

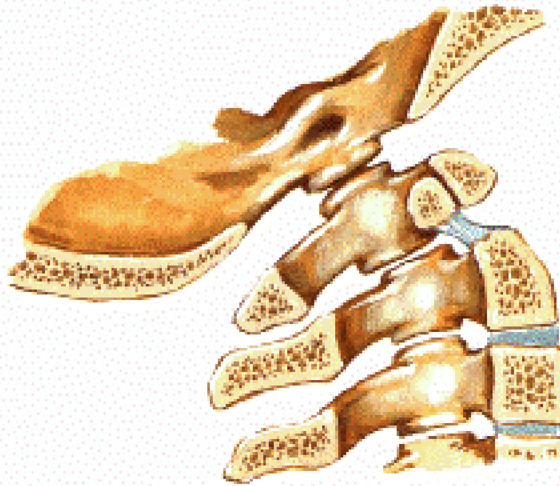
Atlantooccipital Junction

Odontoid Abnormalities

Odontoid abnormalities, most often associated with skeletal dysplasias such as Klippel-Feil, Down's or Morquio's syndromes

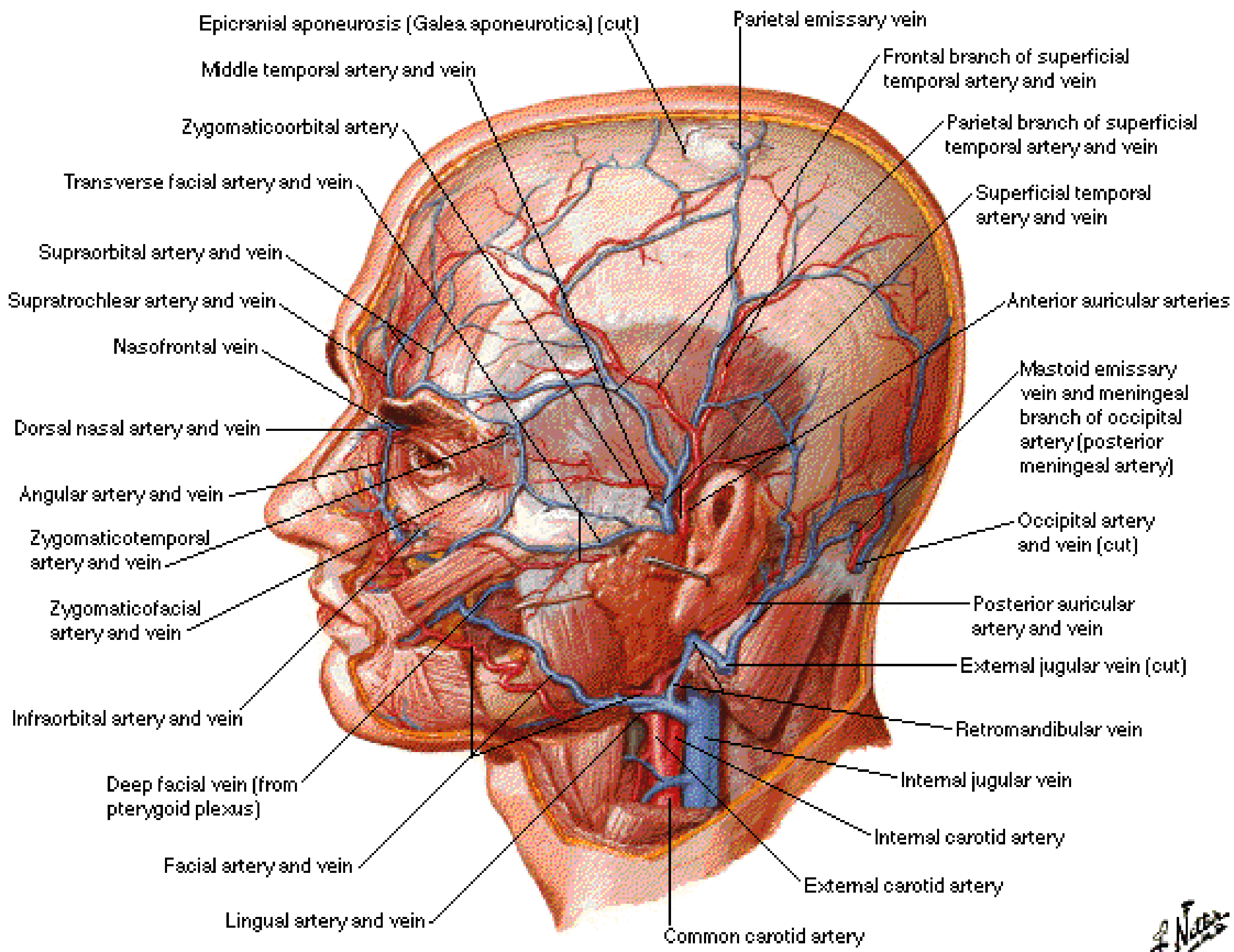


Hypoplastic dens
(odontoid process)



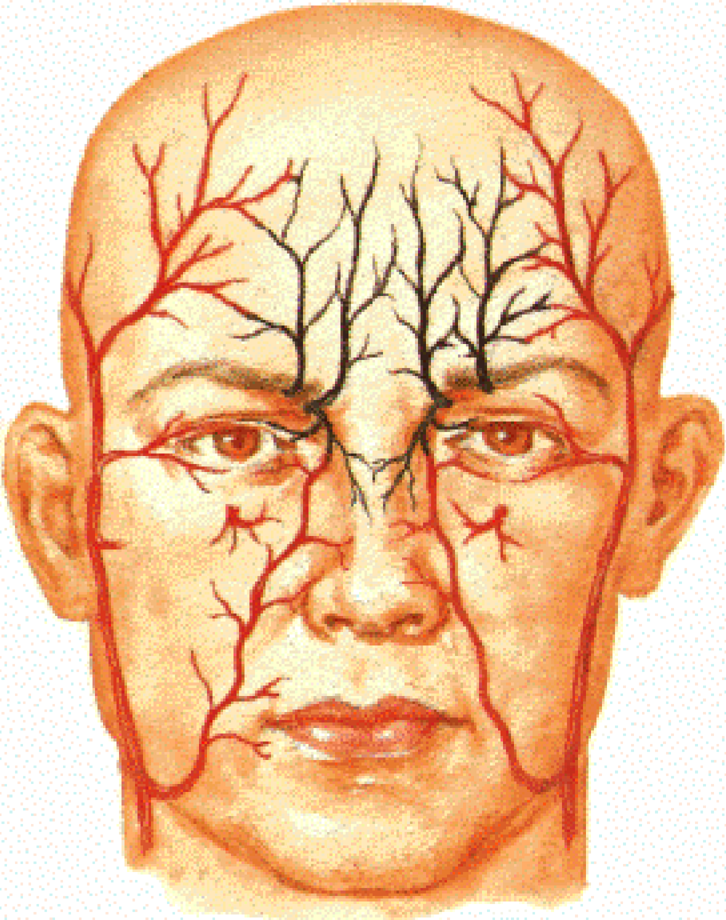
Os odontoideum with fibrous union and narrowing of vertebral canal with head in extension

Superficial Arteries and Veins of Face and Scalp



Superficial Face

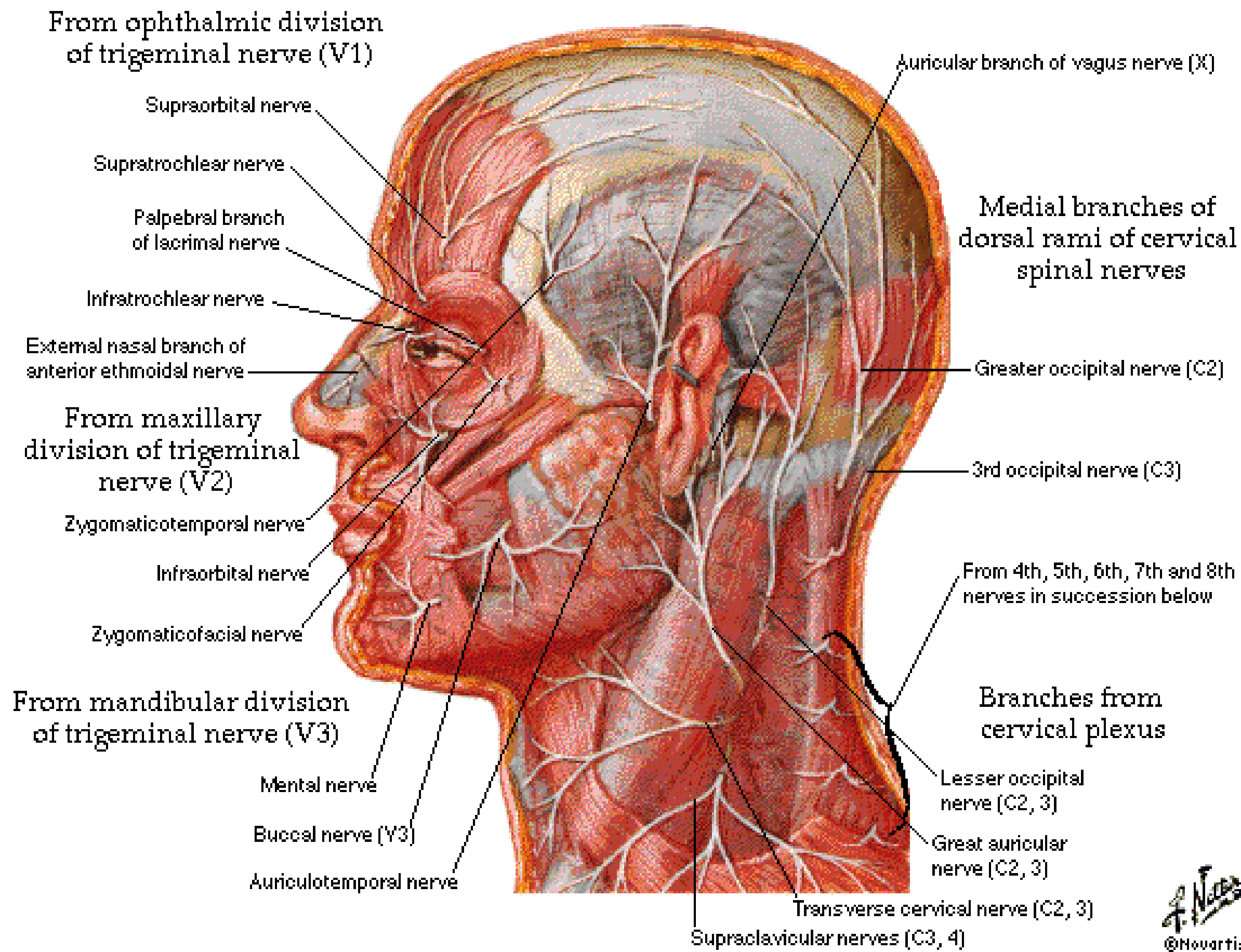
Sources of Arterial Supply



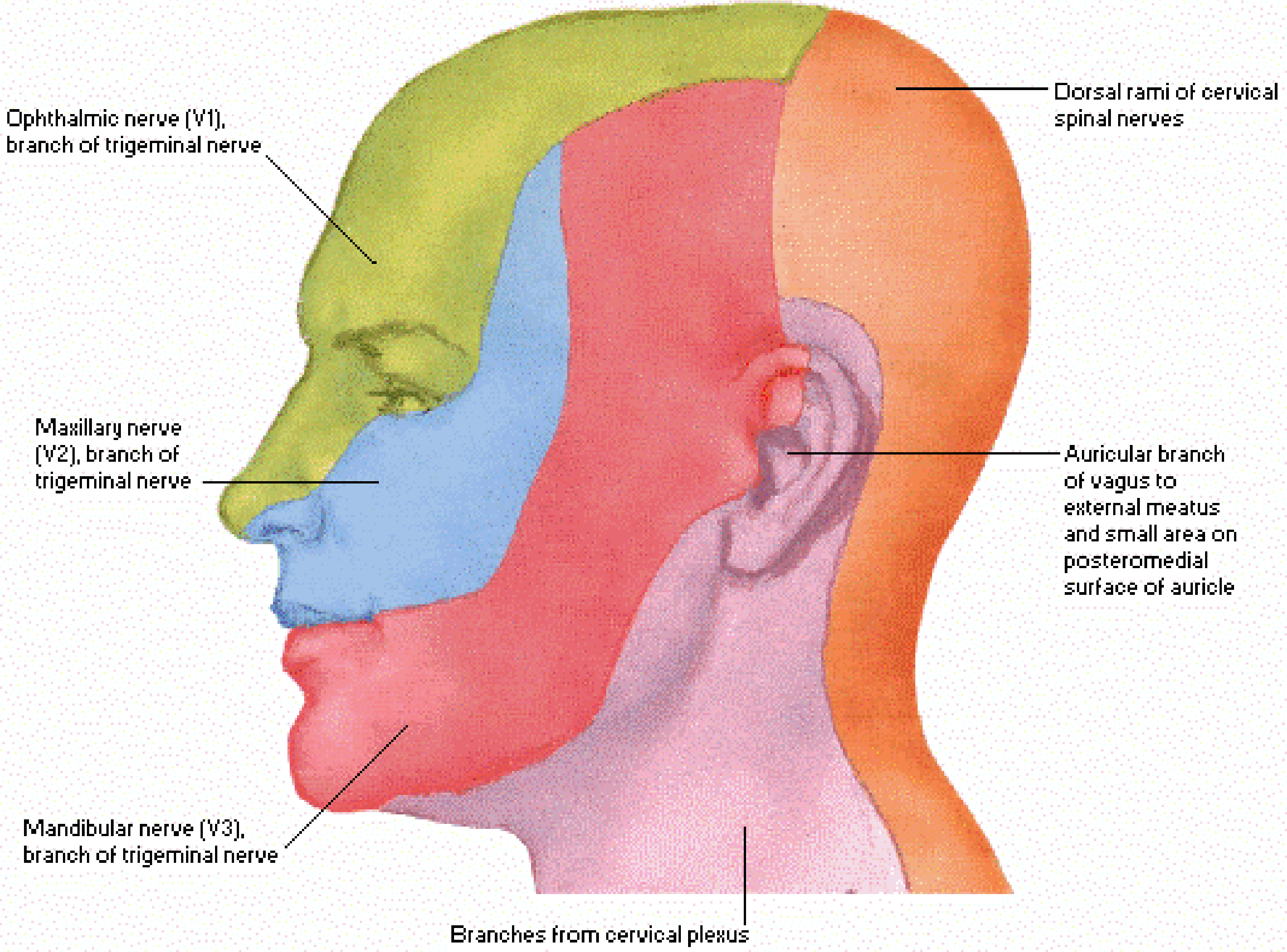
Black: from internal carotid artery (via ophthalmic artery)

Red: from external carotid artery

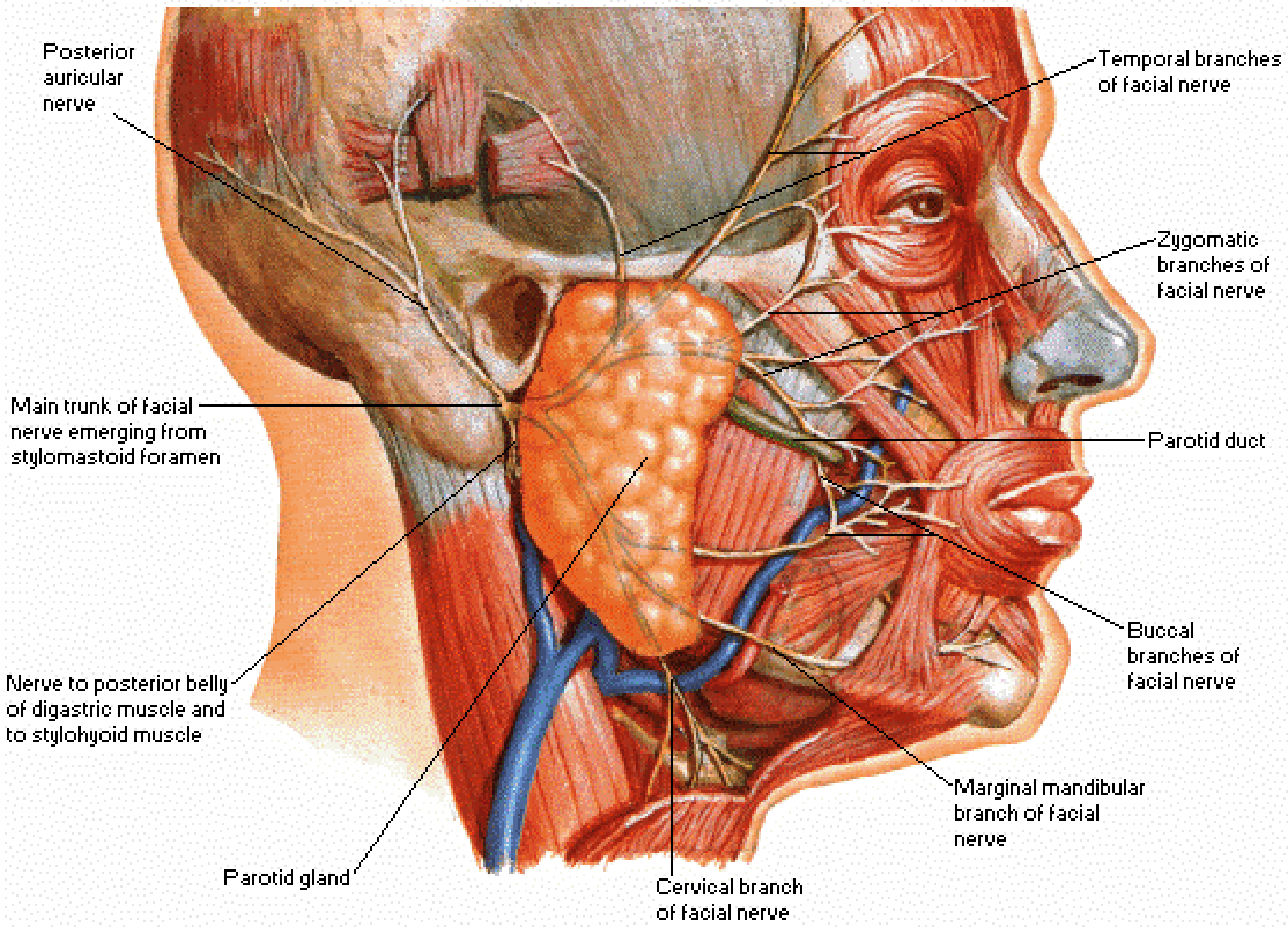
Cutaneous Nerves of Head and Neck



Dermatomes of Head and Neck

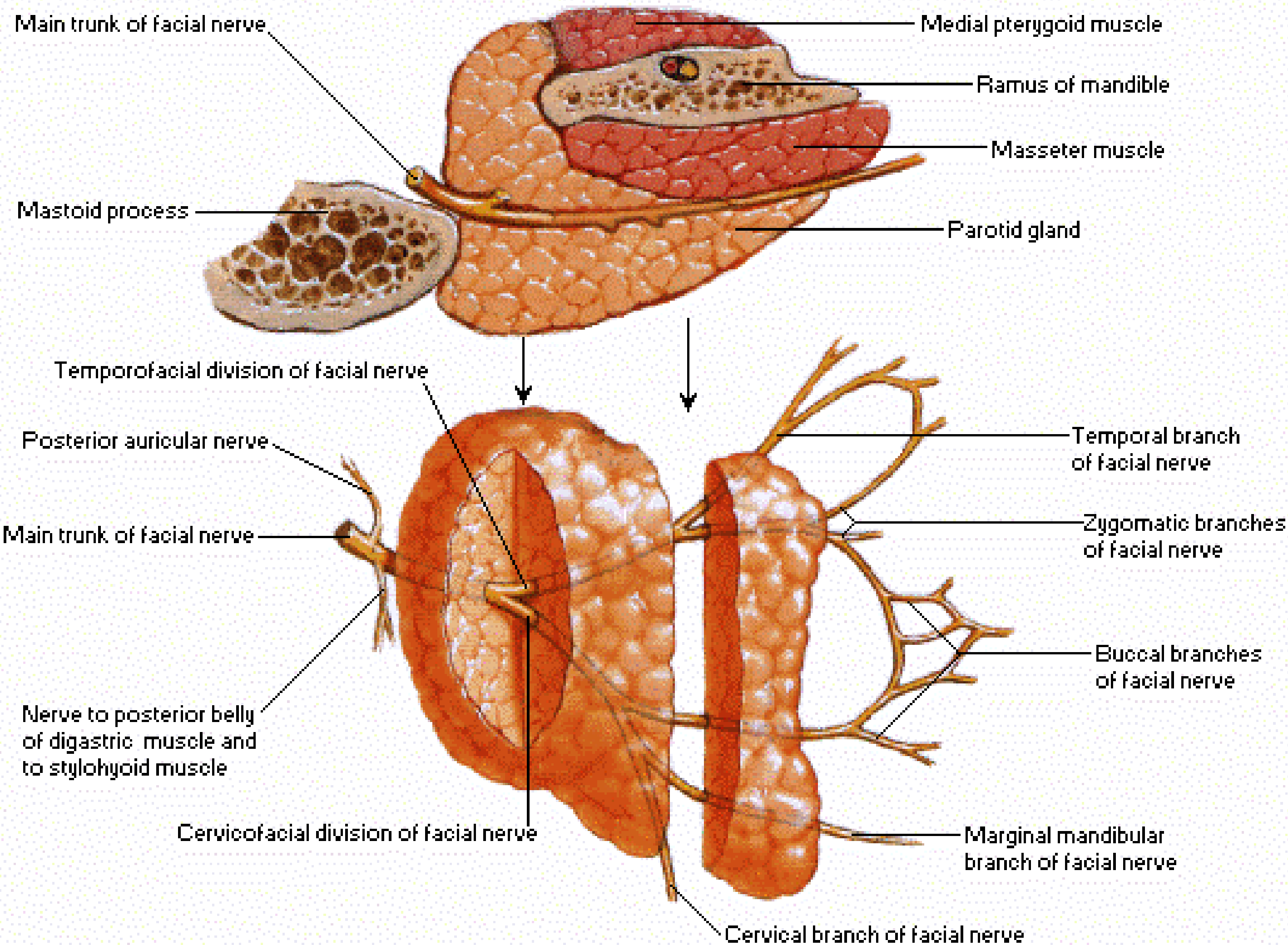


Facial Nerve Branches and Parotid Gland in Situ



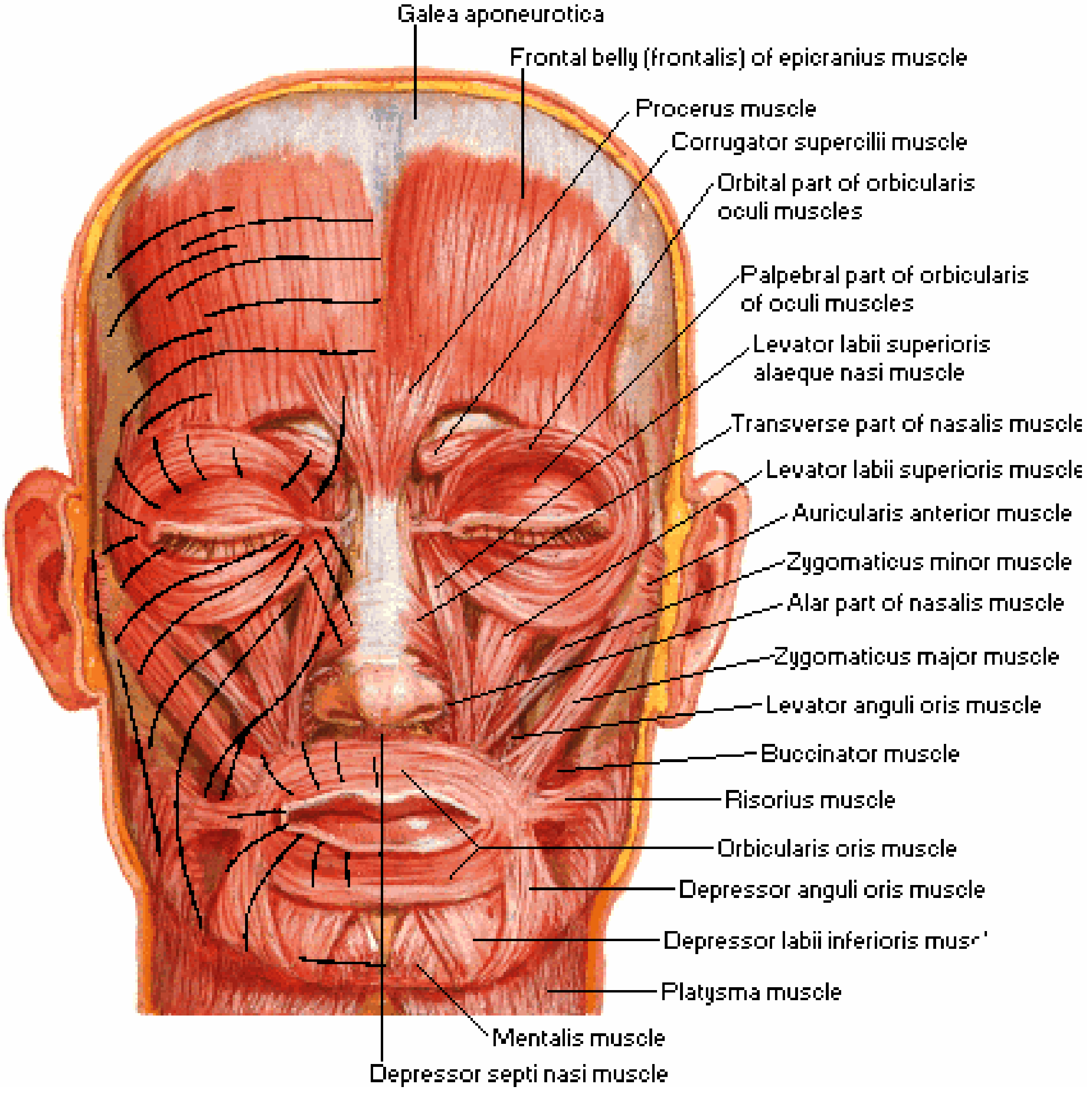
Facial Nerve Branches and Parotid Gland

Sectioned



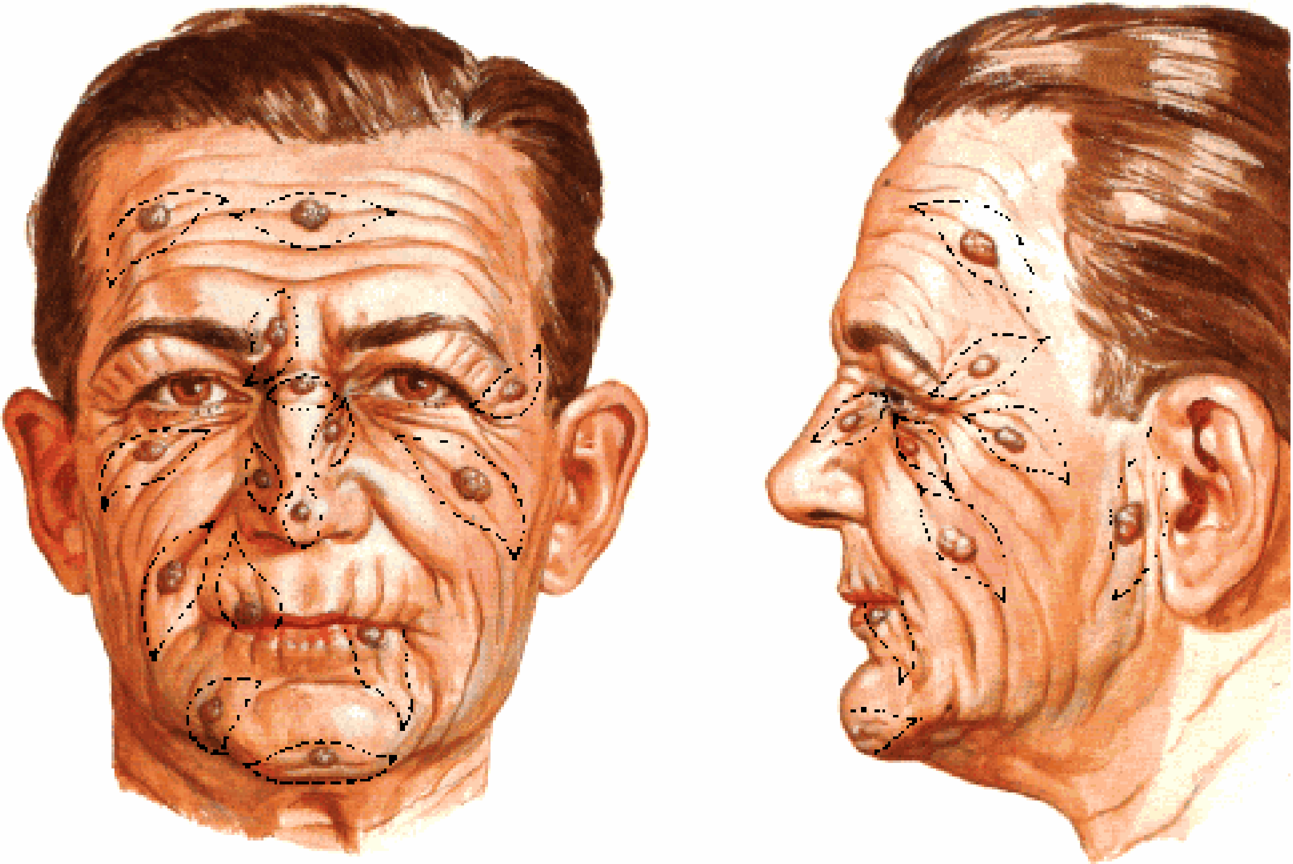
Muscles of Facial Expression

Anterior View



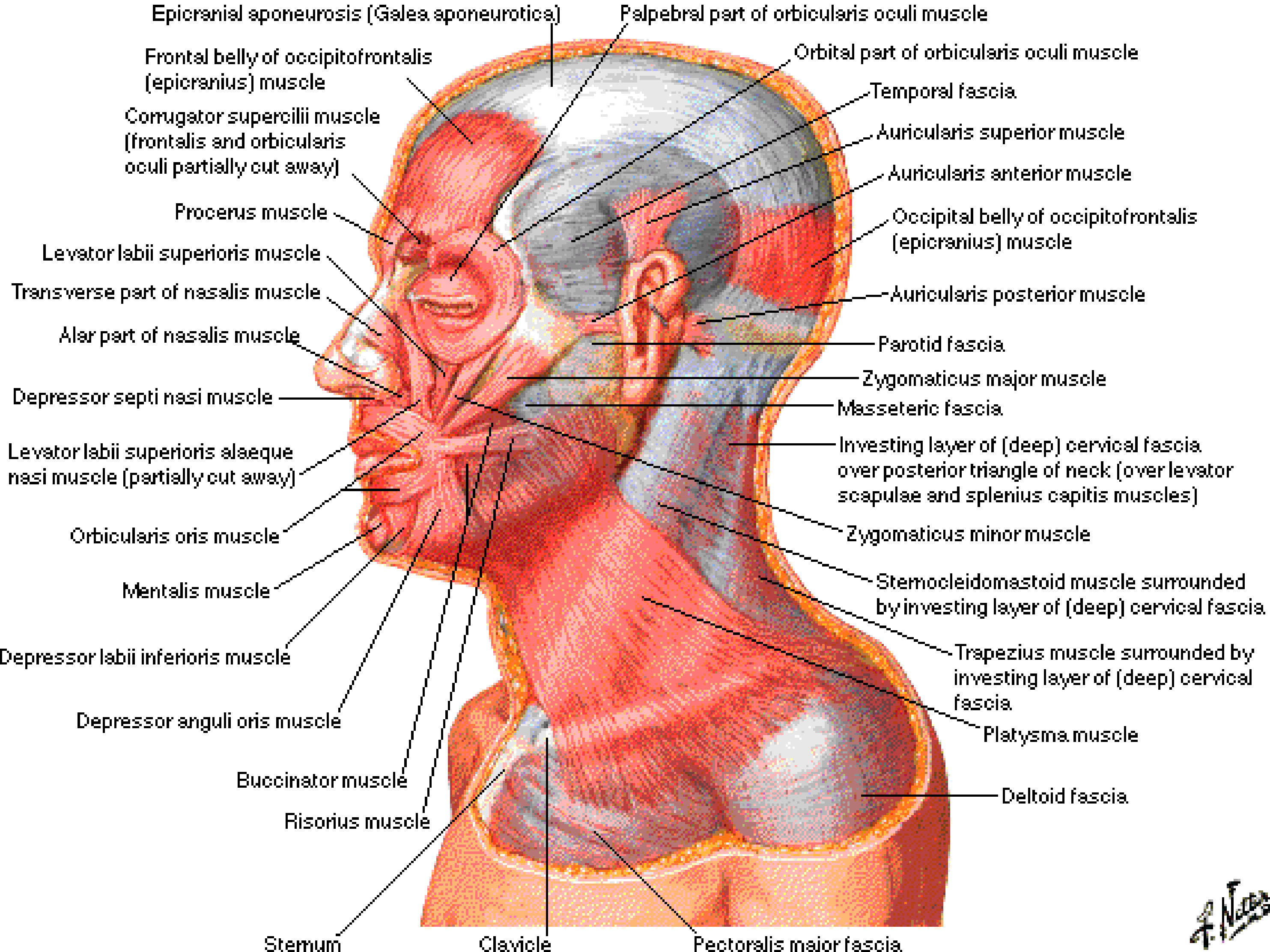
Superficial Face

Course of Wrinkle Lines of Skin



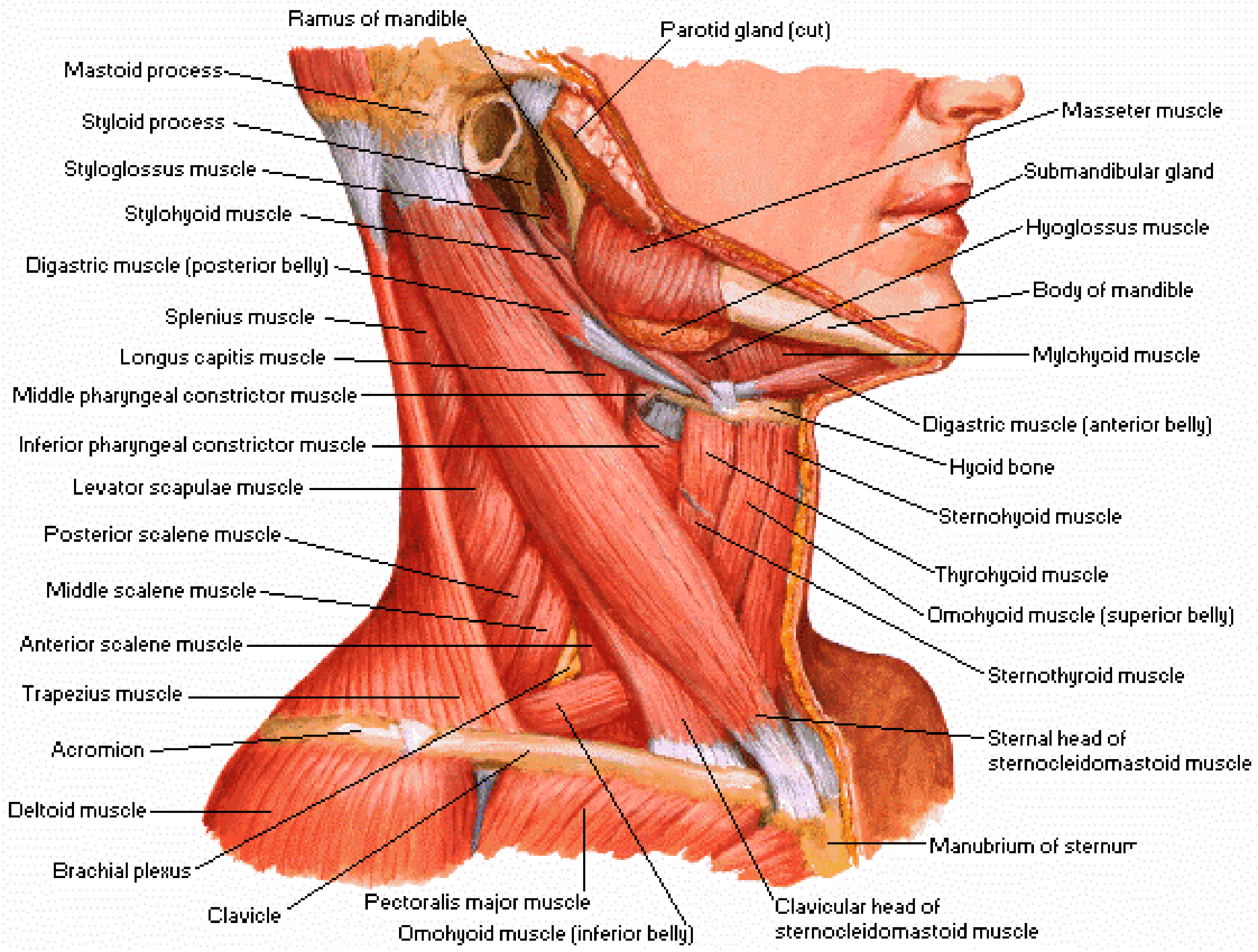
Course of wrinkle lines of skin is transverse to fiber direction of facial muscles. Elliptical incisions for removal of skin tumors conform to direction of wrinkle lines

Muscles of Facial Expression
Lateral View



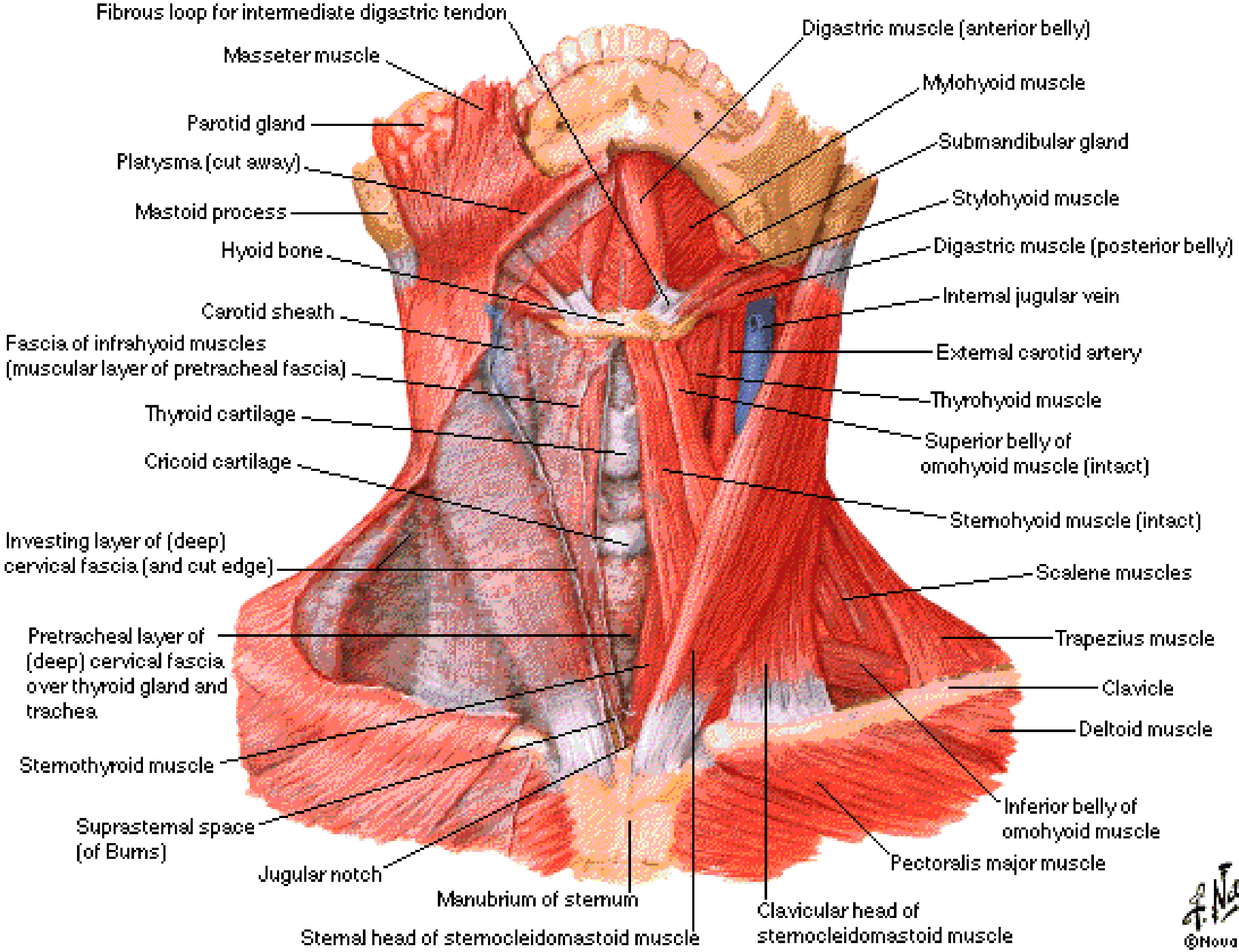
Muscles of Neck

Lateral View

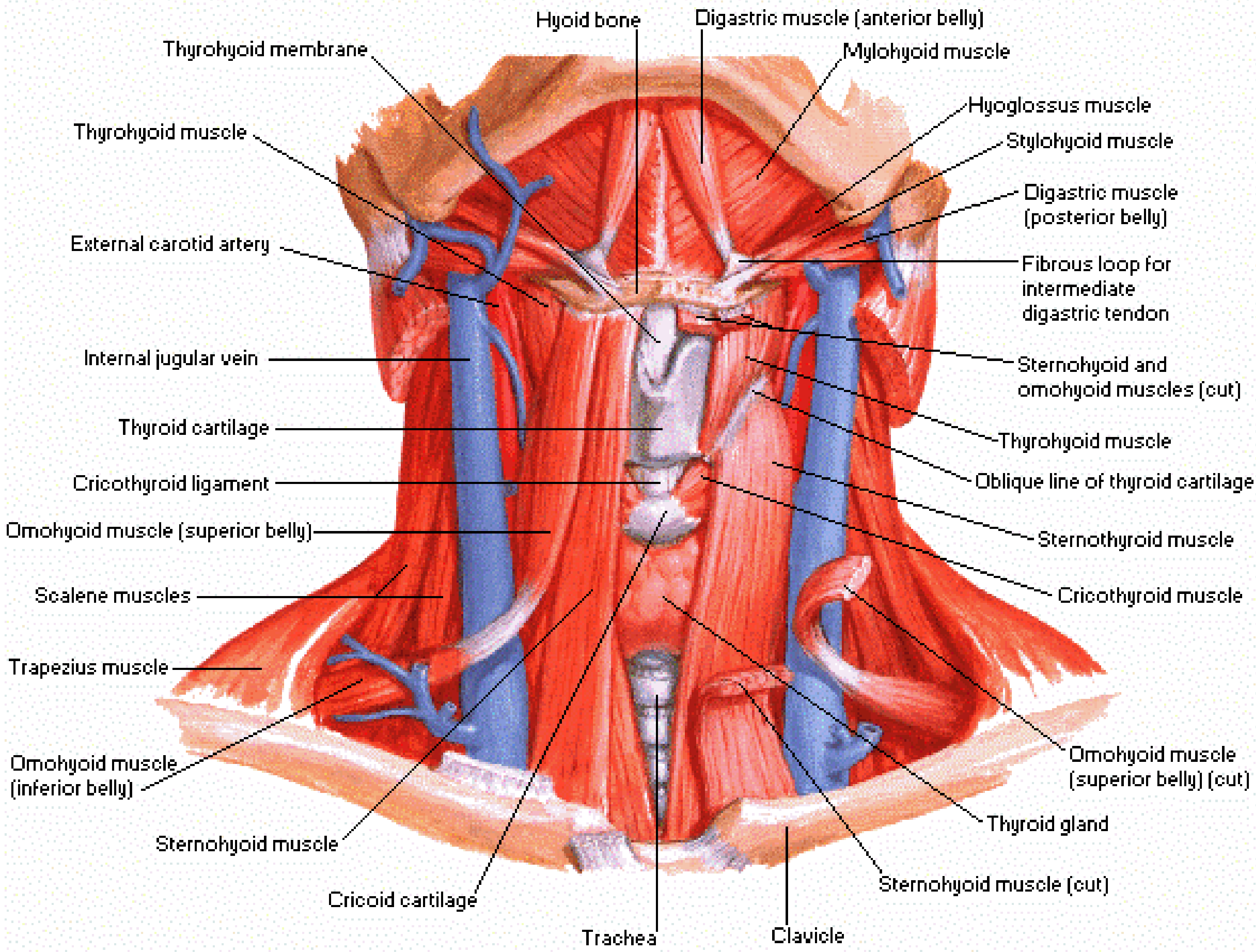


Muscles of Neck

Anterior View

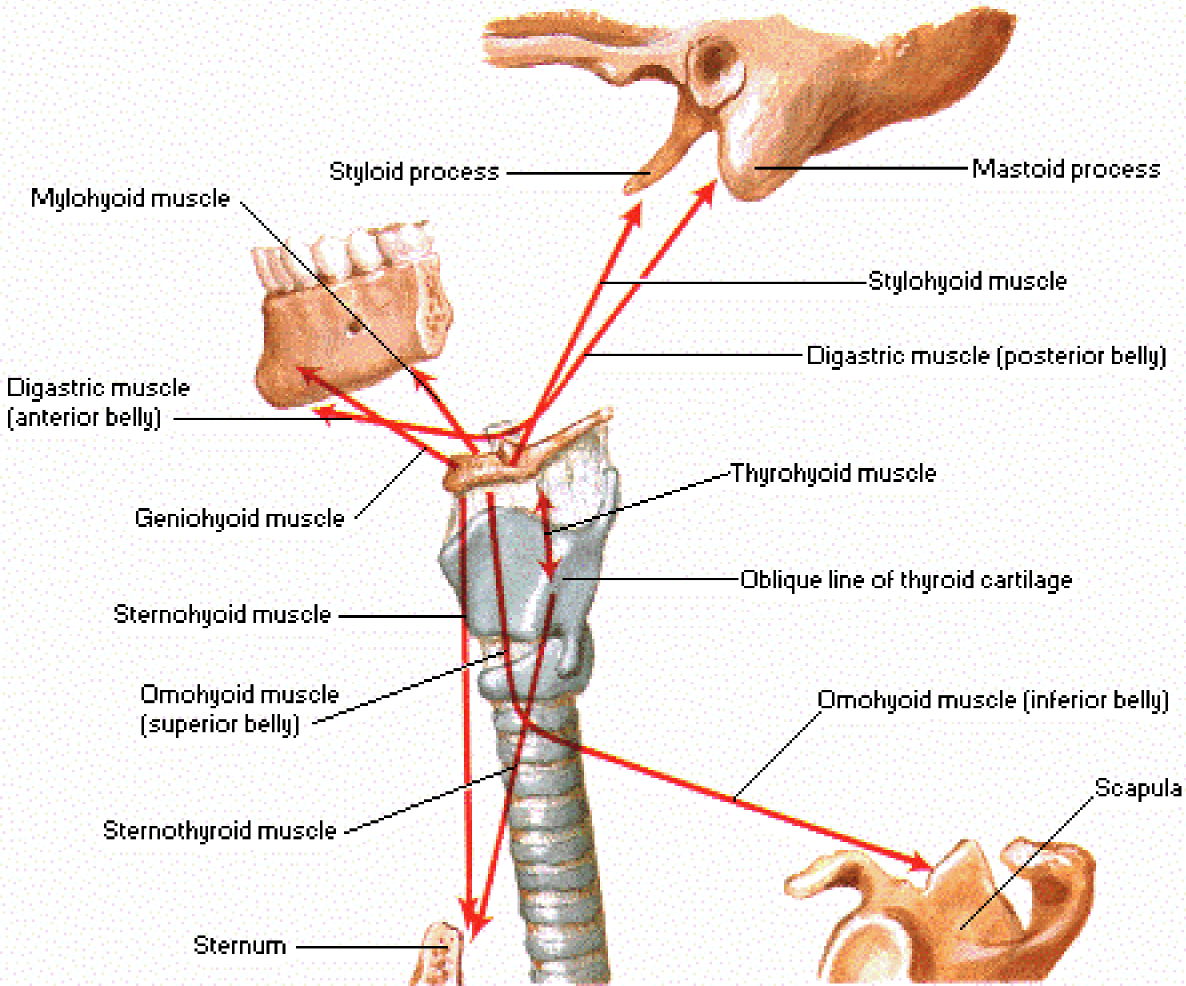


Infrahyoid and Suprahyoid Muscles

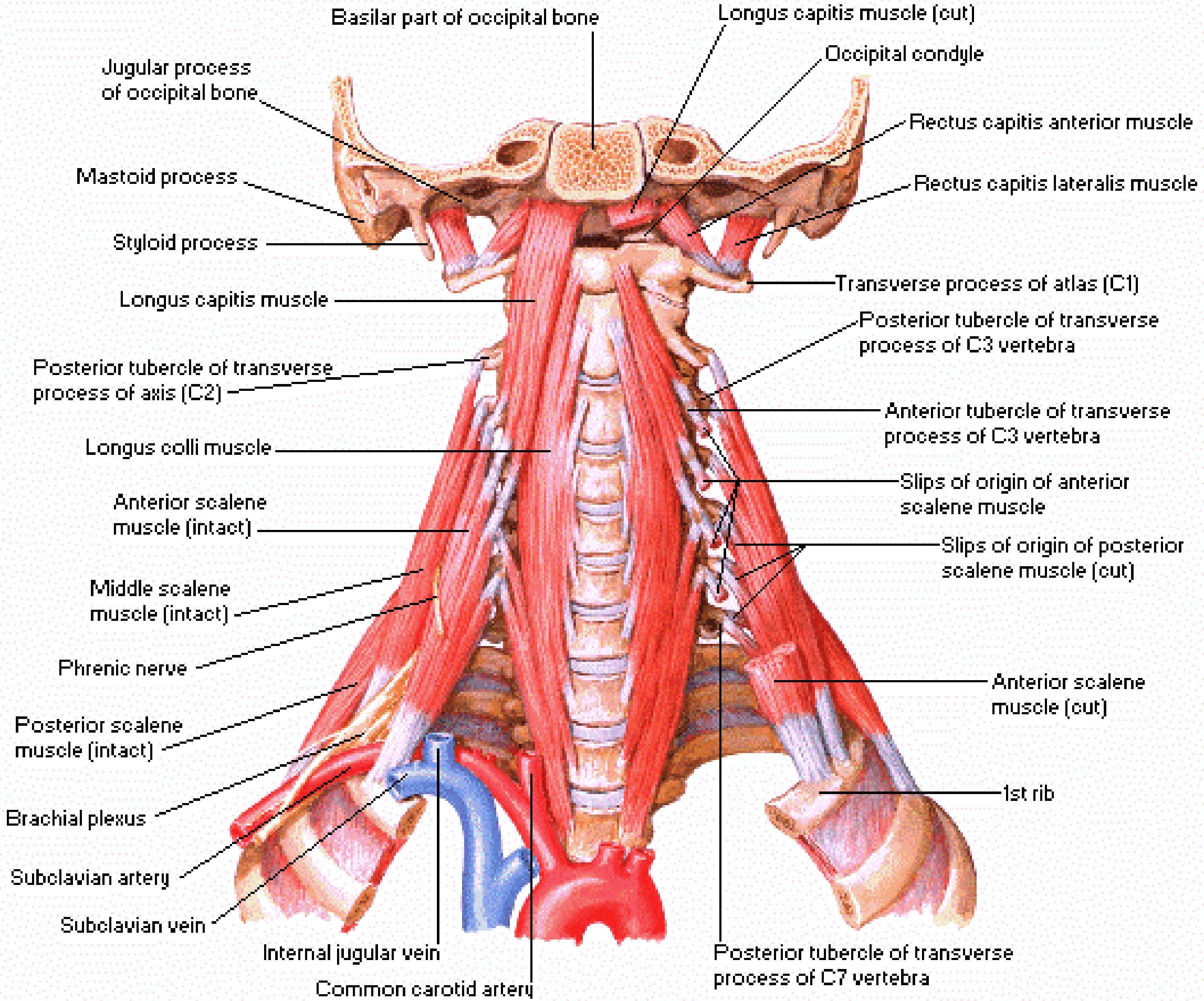


Infrahyoid and Suprahyoid Muscles and their Action

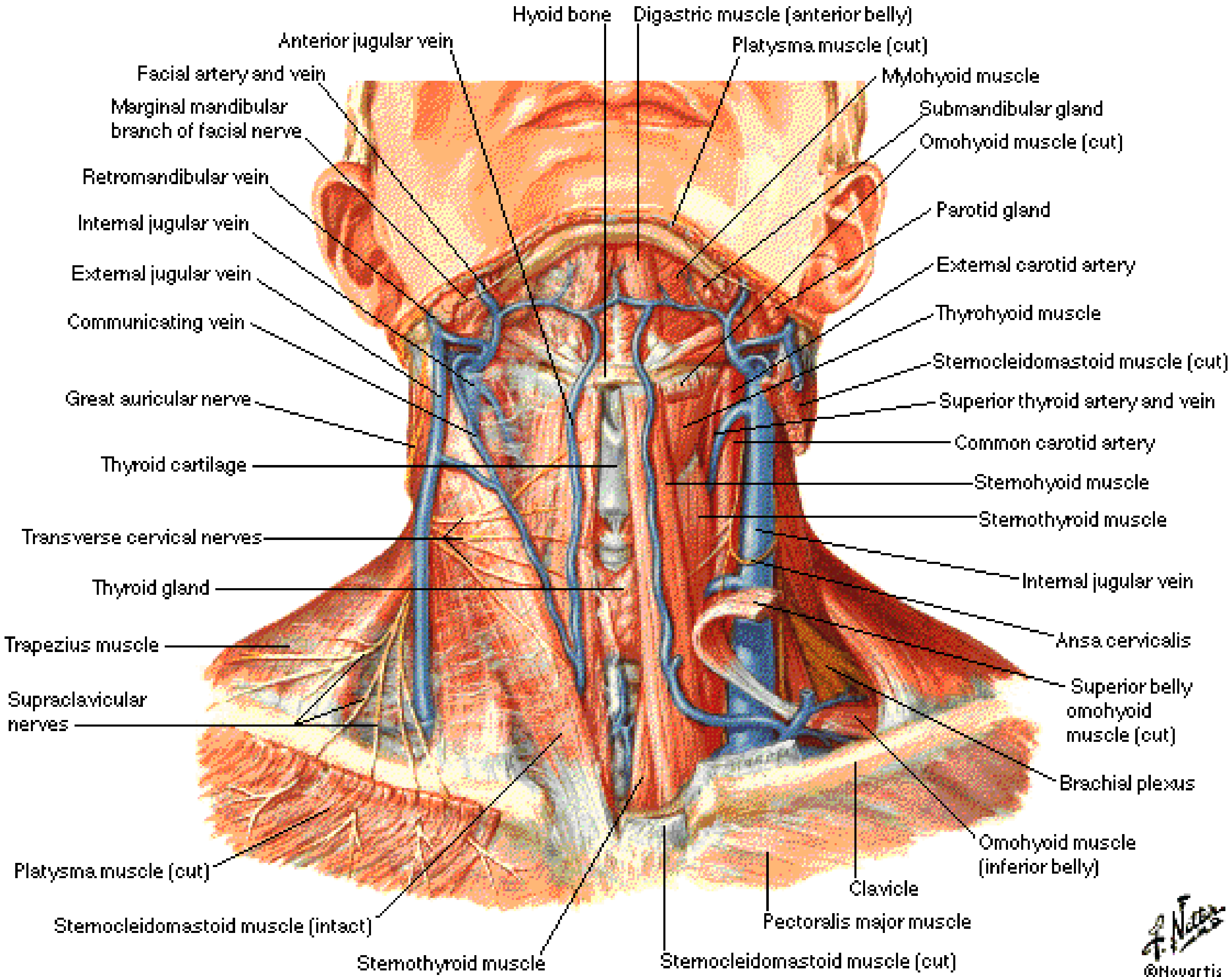
Schema



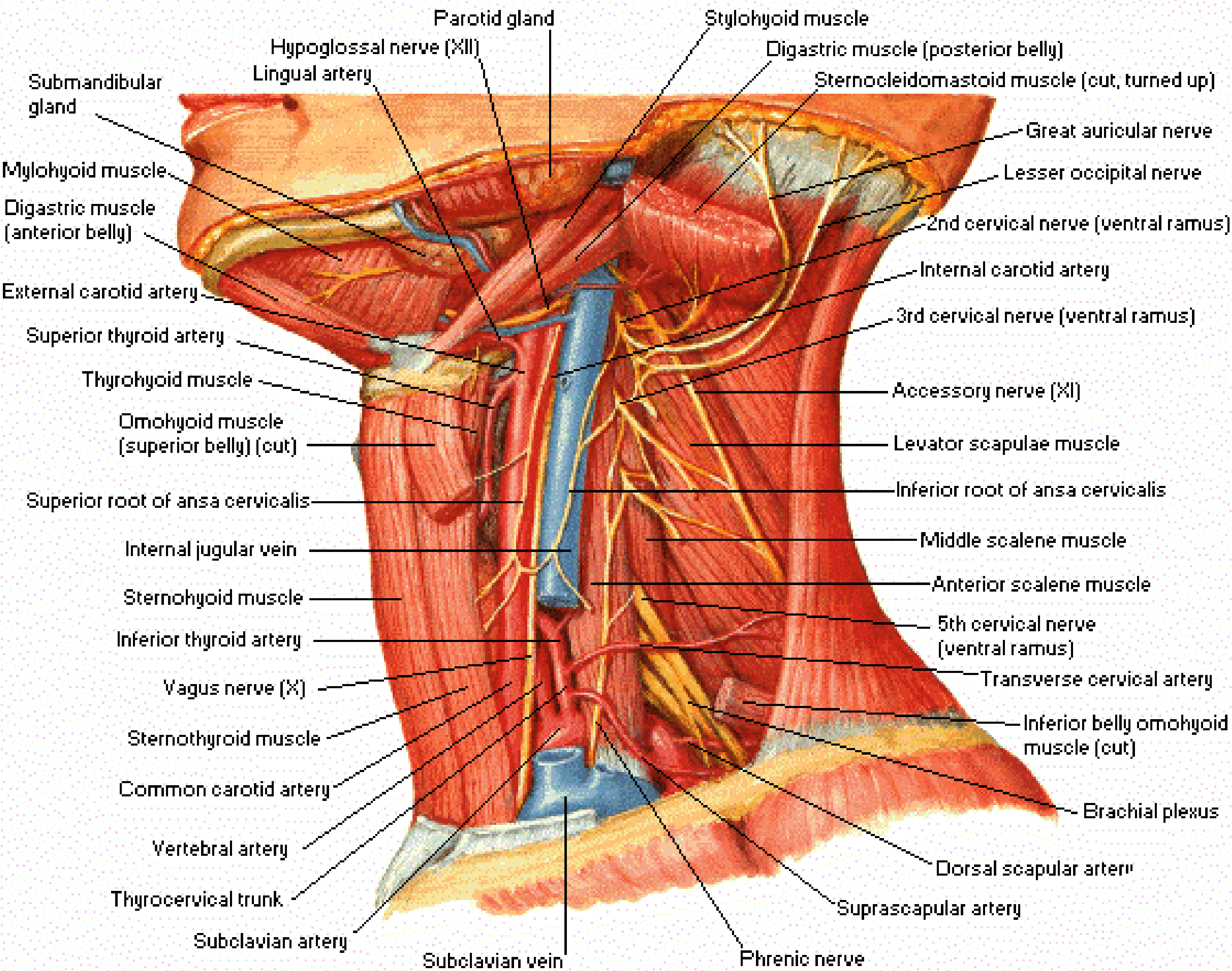
Scalene and Prevertebral Muscles



Superficial Veins and Cutaneous Nerves of Neck

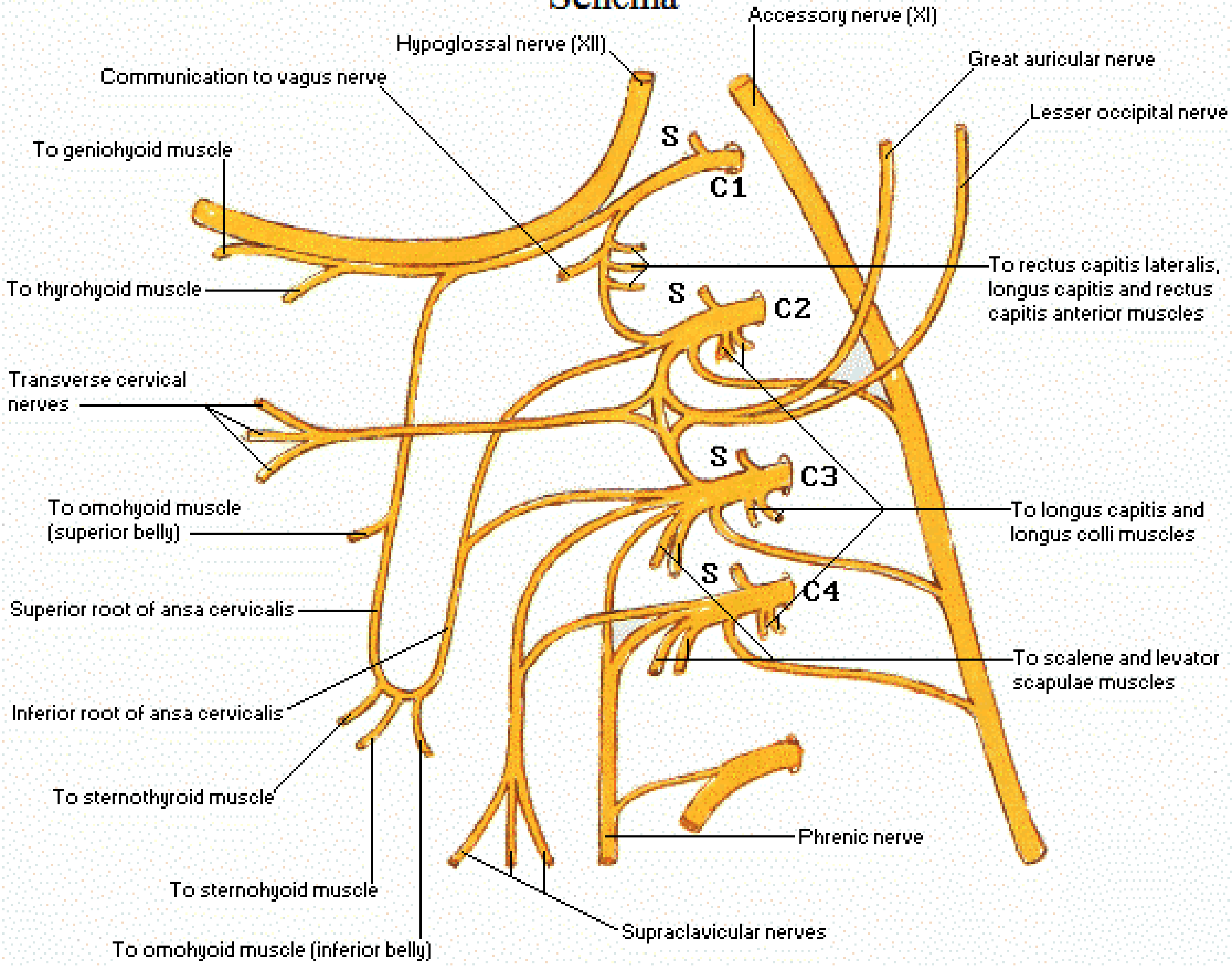


Cervical Plexus in Situ



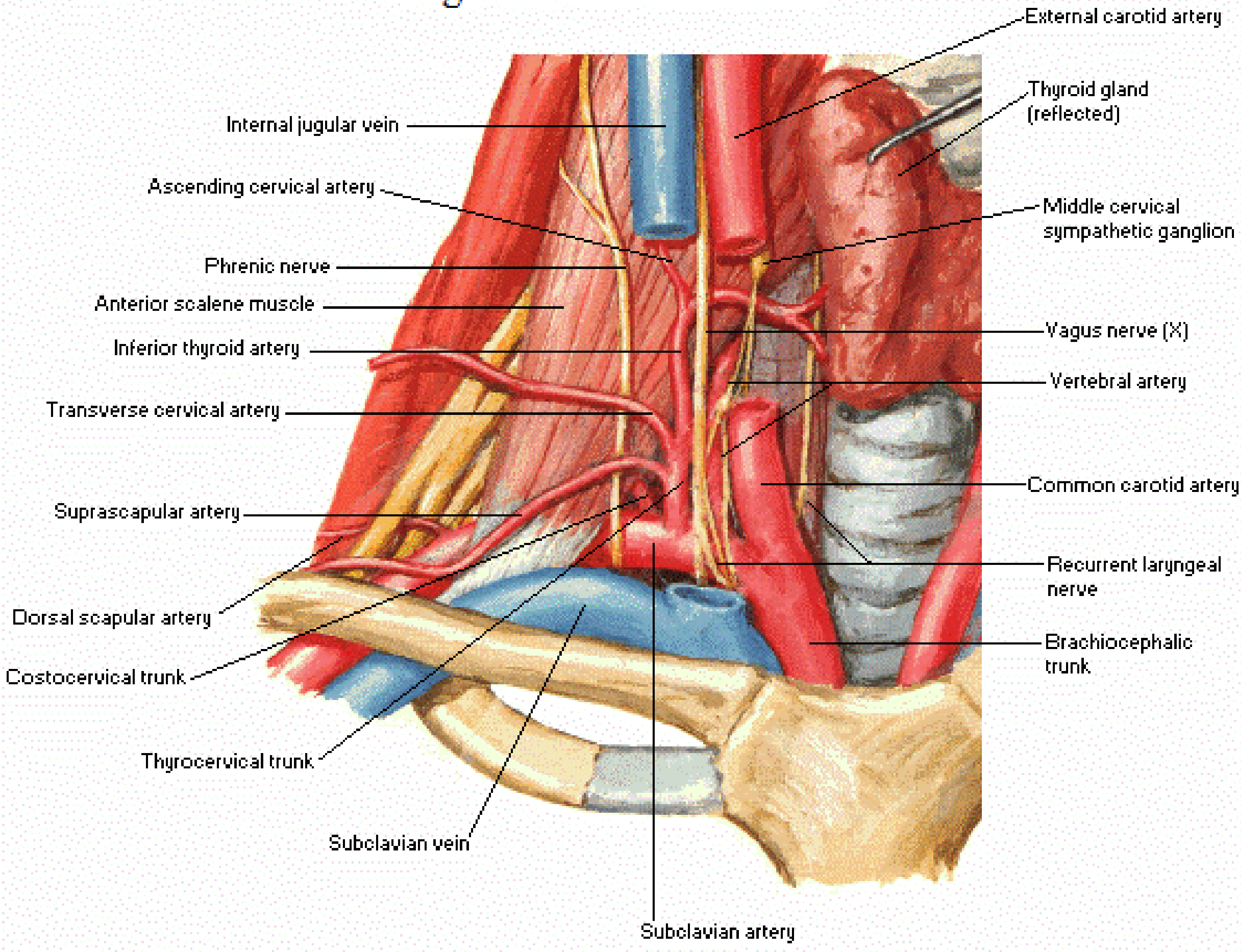
Cervical Plexus

Schema



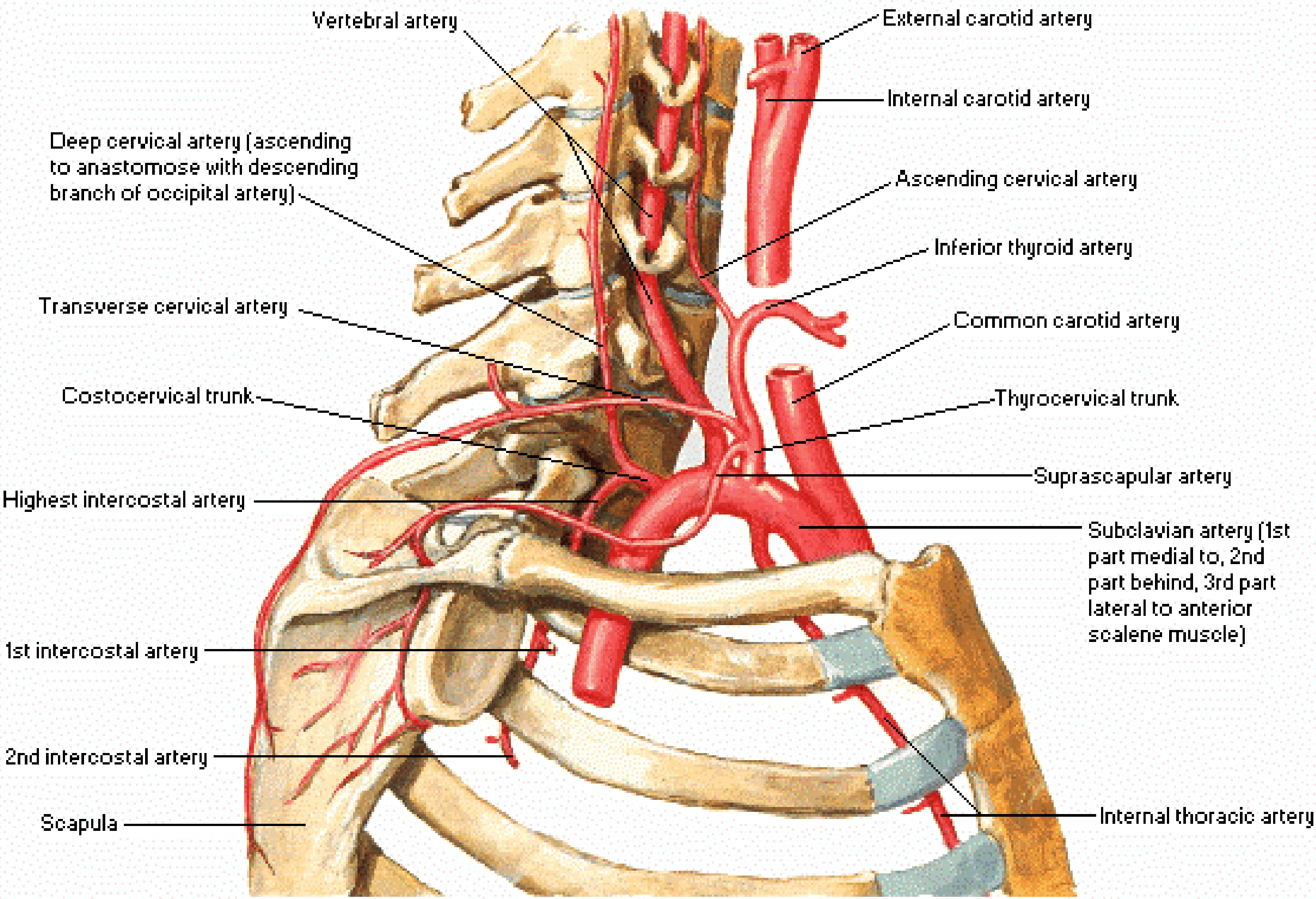
Subclavian Artery

Right Anterior Dissection



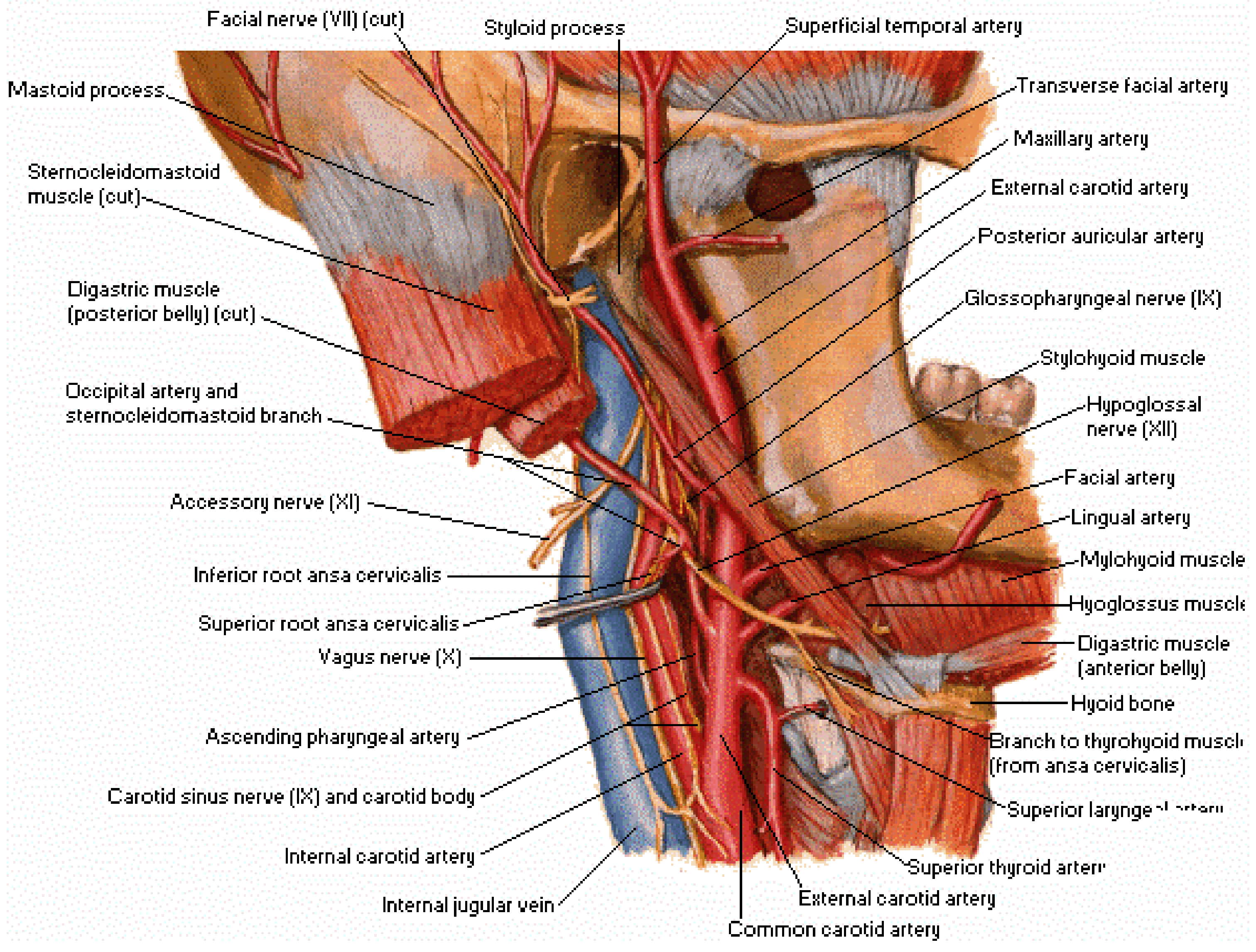
Subclavian Artery

Right Lateral Schematic View



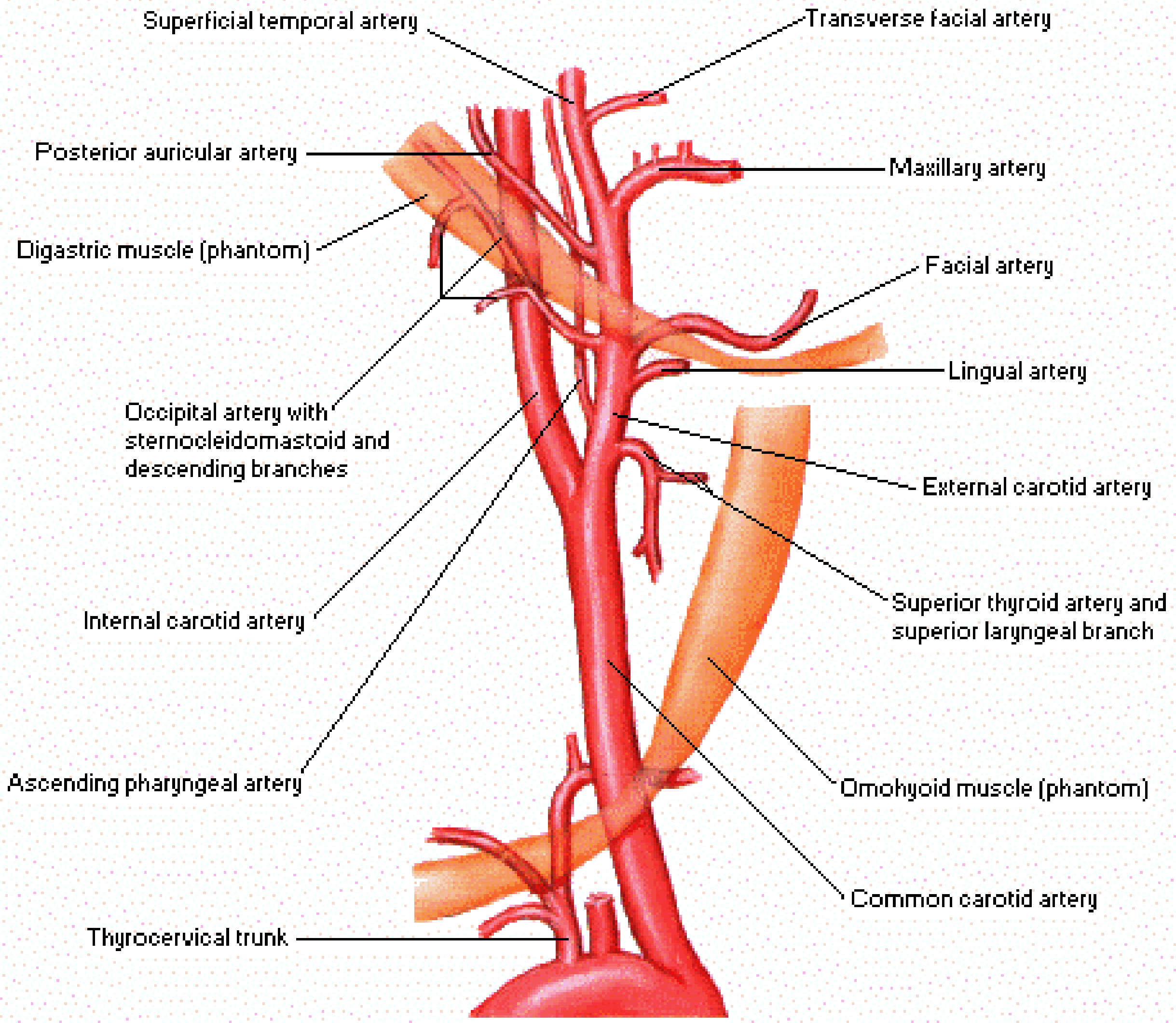
Carotid Arteries - Parotid Fossa

Right Lateral Dissection



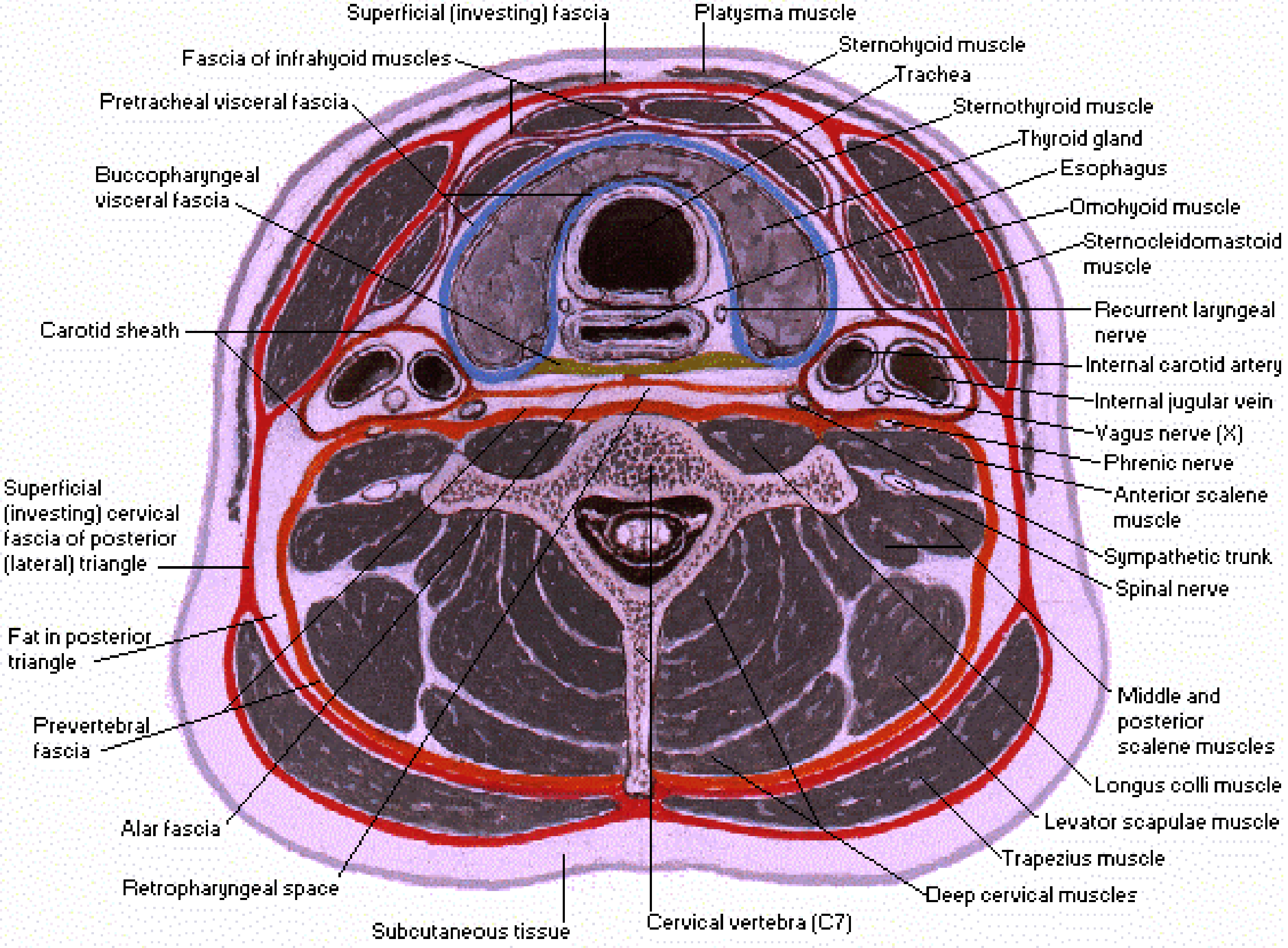
External Carotid Artery and Branches

Schema



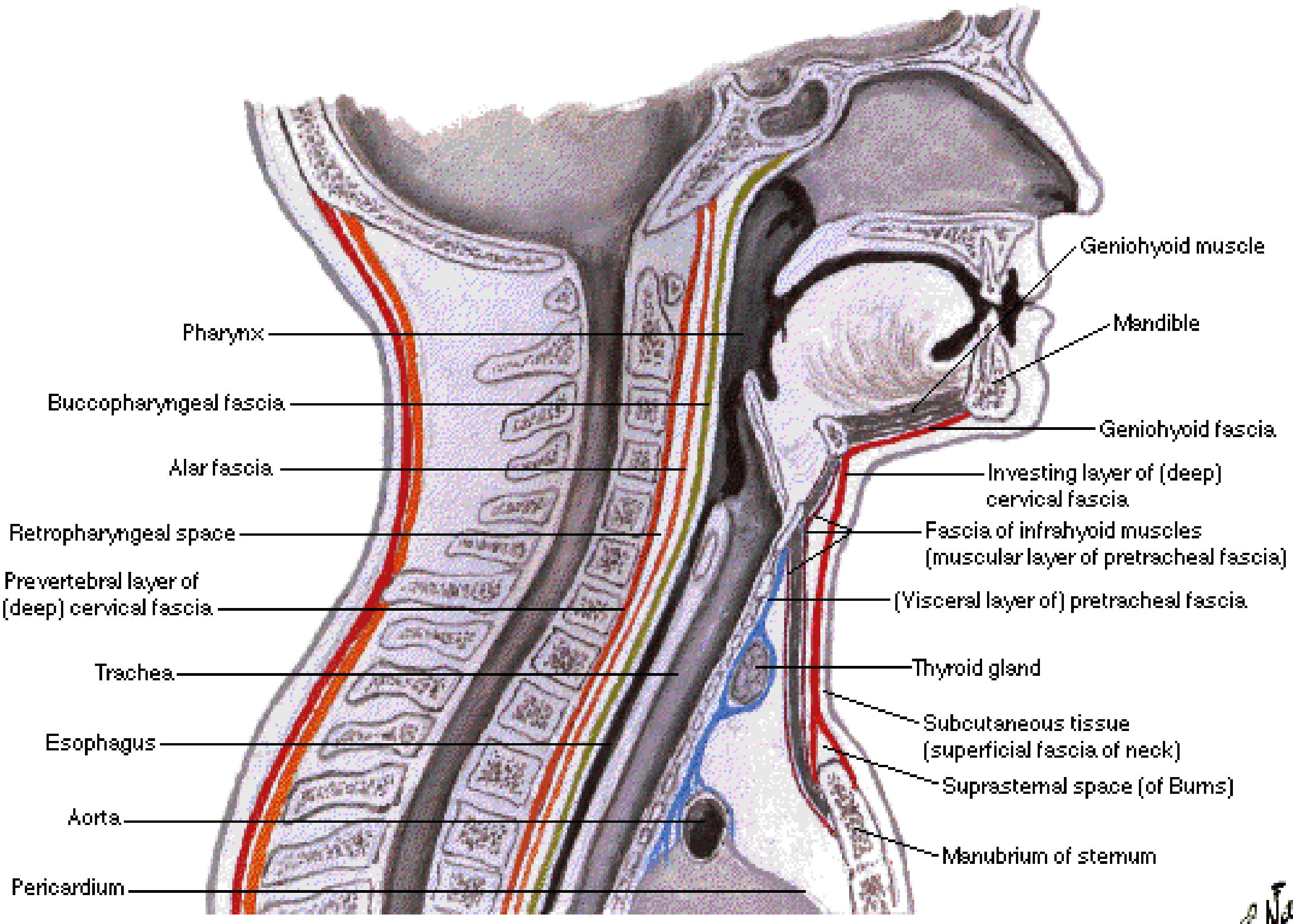
Fascial Layers of Neck

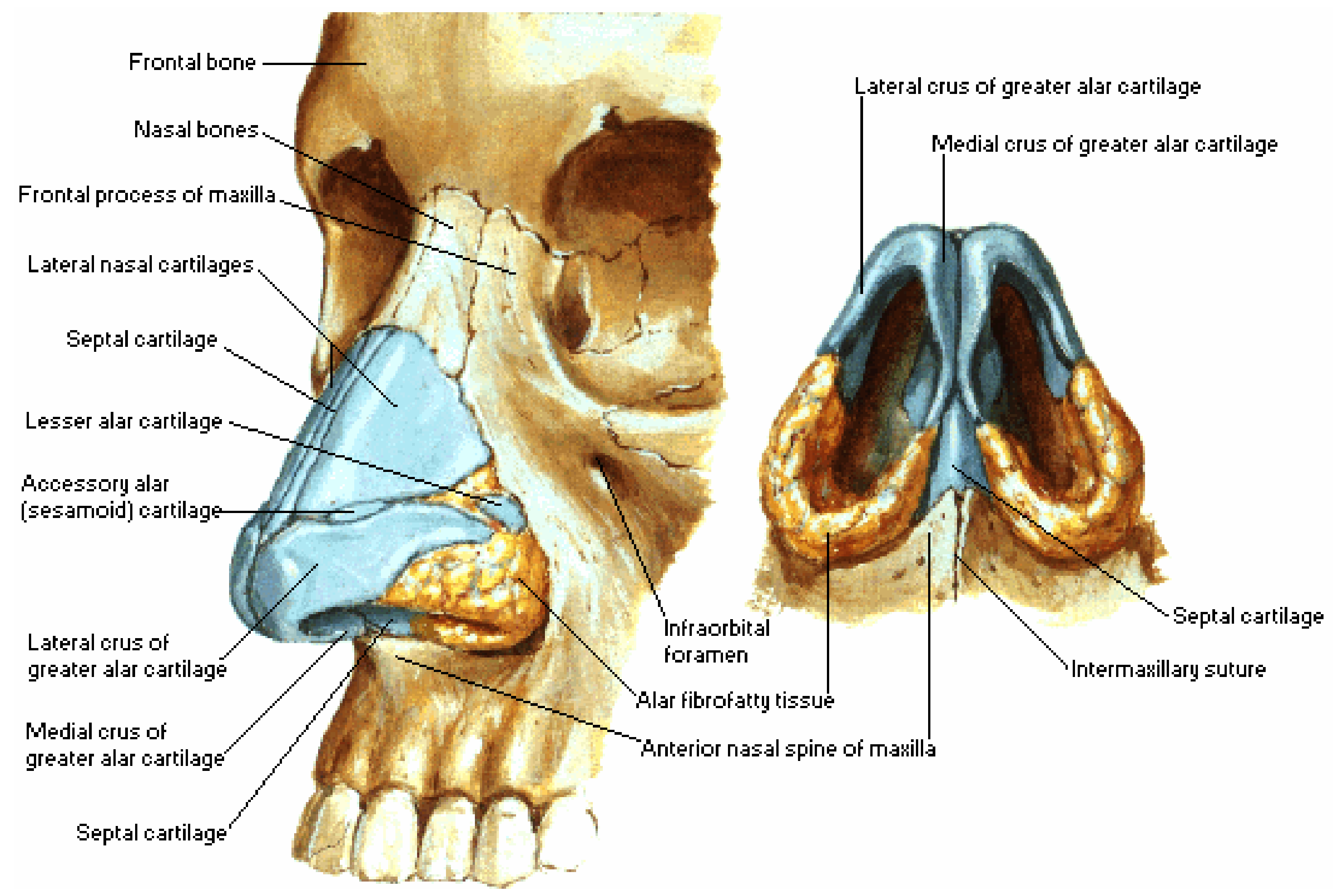
Cross Section



Fascial Layers of Neck

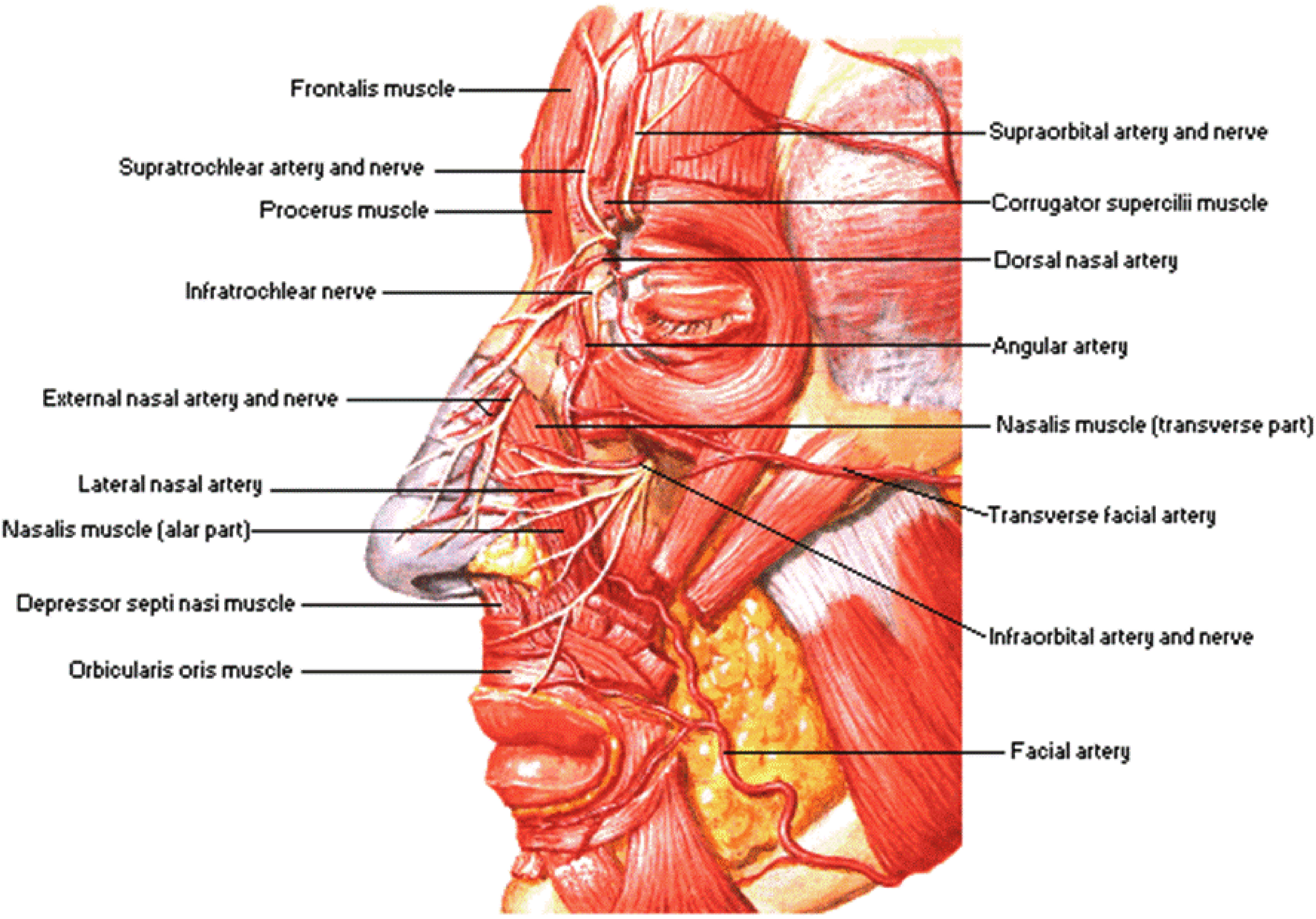
Sagittal Section

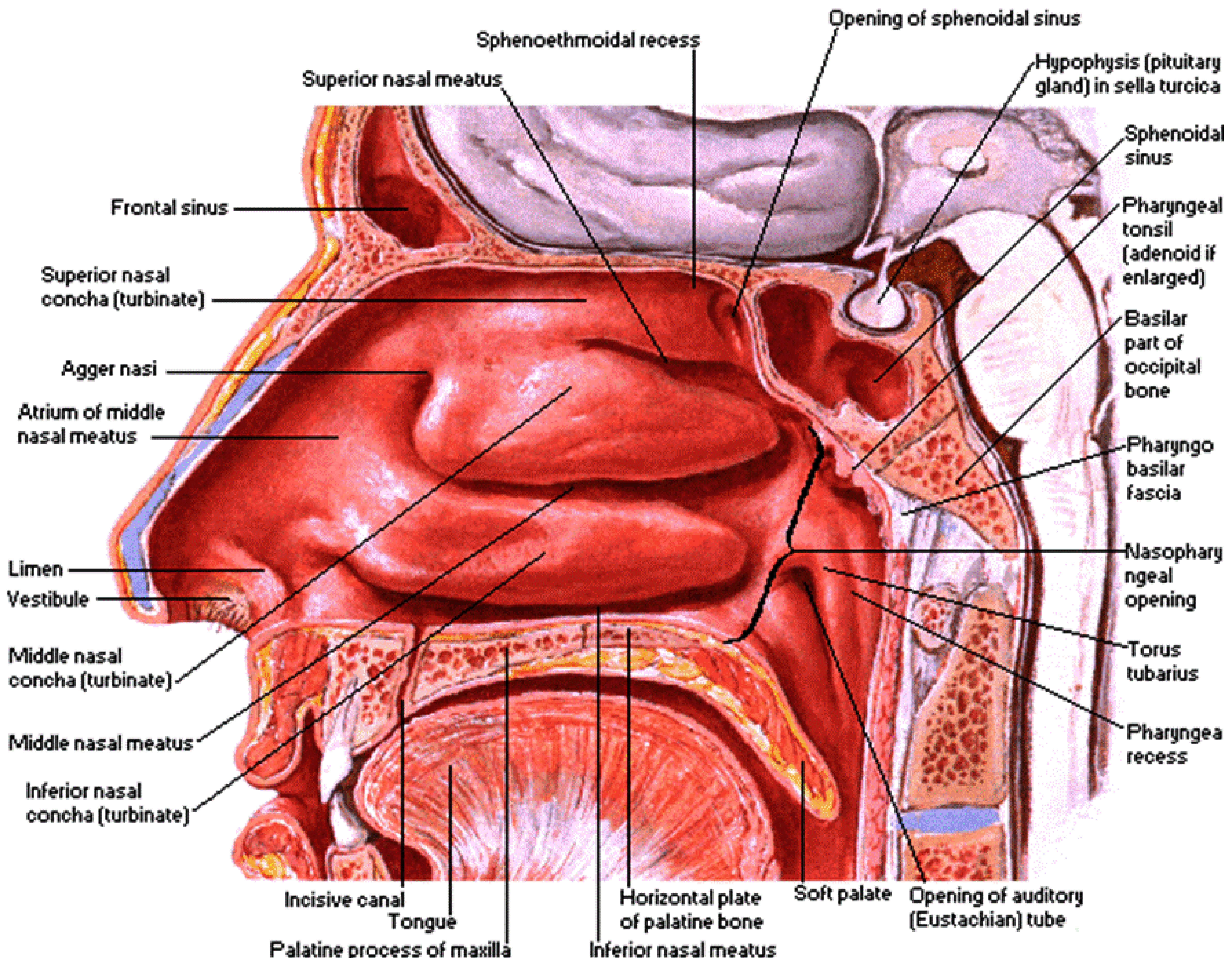




Frontal bone
Nasal bones
Frontal process of maxilla
Lateral nasal cartilages
Septal cartilage
Lesser alar cartilage
Accessory alar (sesamoid) cartilage
Lateral crus of greater alar cartilage
Medial crus of greater alar cartilage
Septal cartilage
Infraorbital foramen
Alar fibrofatty tissue
Anterior nasal spine of maxilla
Lateral crus of greater alar cartilage
Medial crus of greater alar cartilage
Septal cartilage
Intermaxillary suture

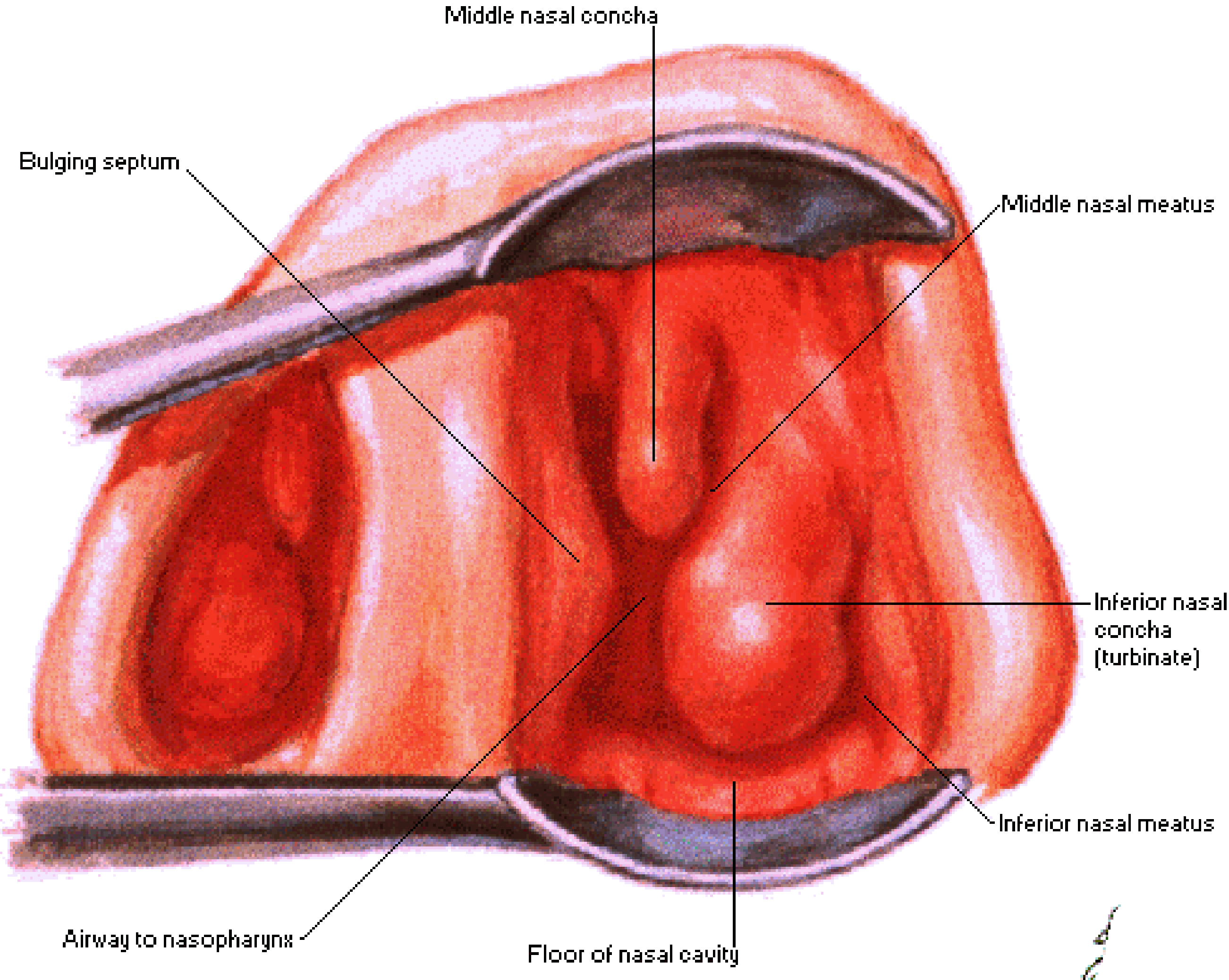
Lateral View

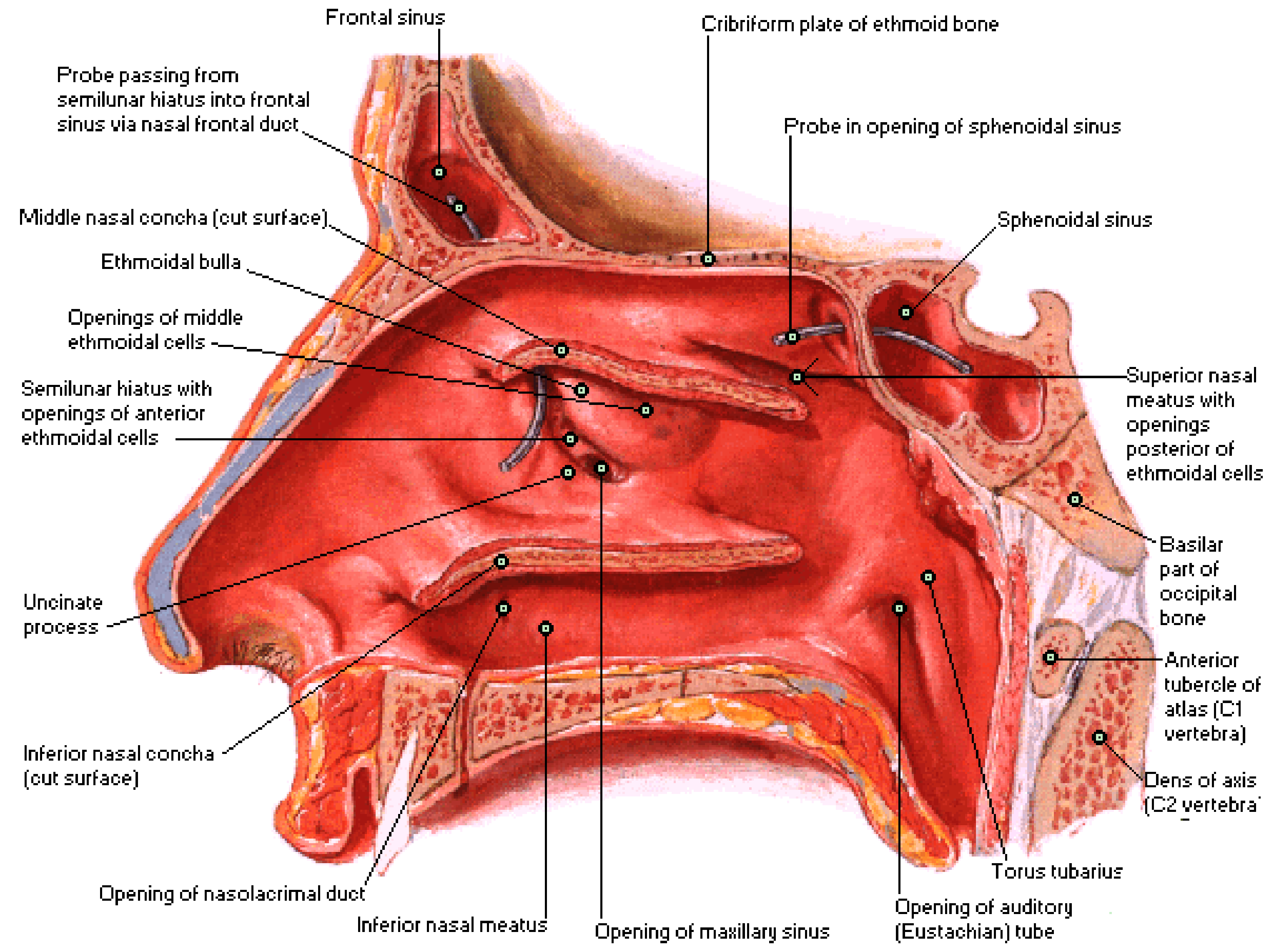




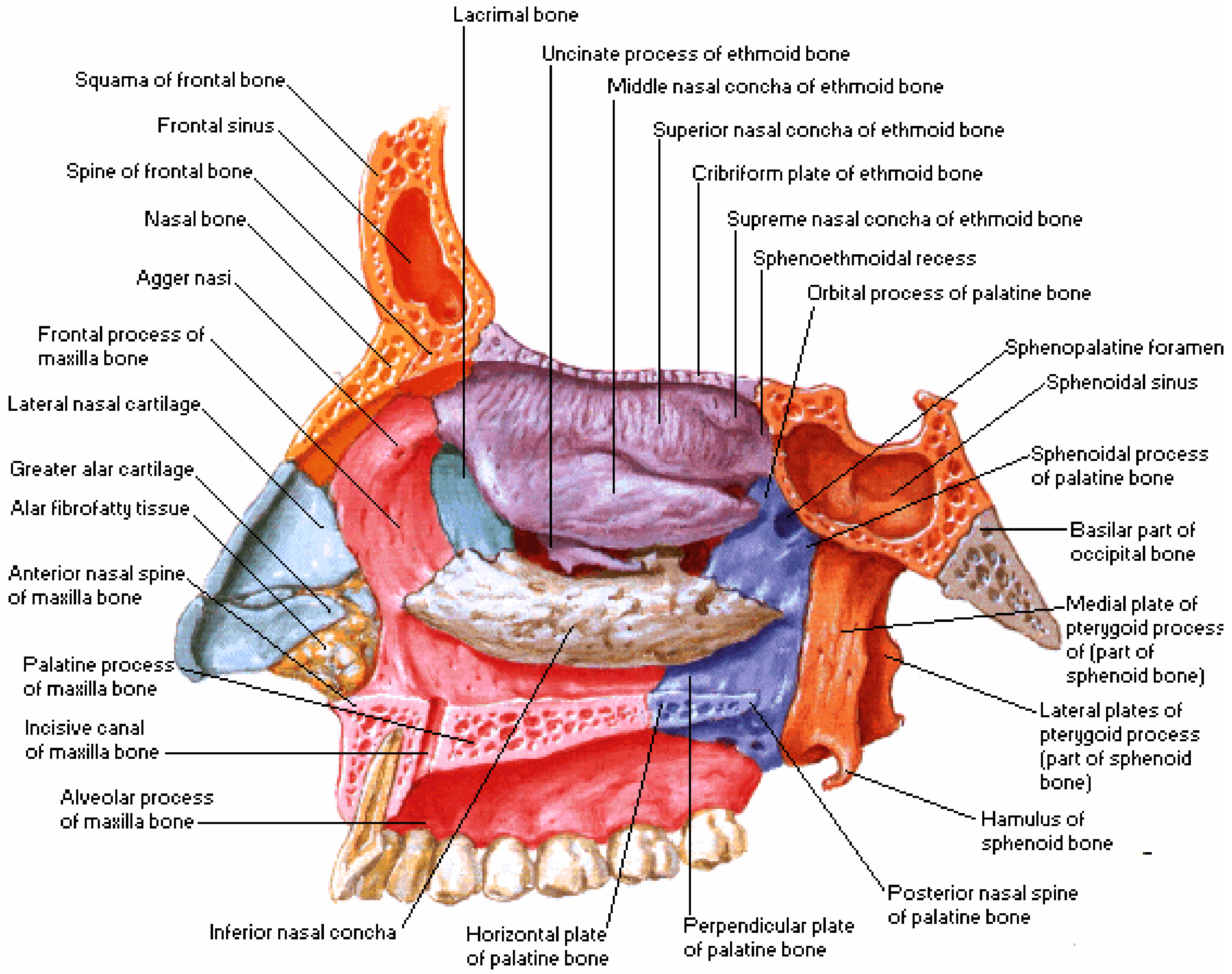
Opening of sphenoidal sinus
Sphenoethmoidal recess
Hypophysis (pituitary gland) in sella turcica
Superior nasal meatus
Sphenoidal sinus
Frontal sinus
Pharyngeal tonsil (adenoid if enlarged)
Superior nasal concha (turbinate)
Basilar part of occipital bone
Agger nasi
Atrium of middle nasal meatus
Pharyngo basilar fascia
Limen
Vestibule
Nasopharyngeal opening
Middle nasal concha (turbinate)
Torus tubarius
Middle nasal meatus
Pharyngea recess
Inferior nasal concha (turbinate)
Incisive canal
Tongue
Palatine process of maxilla
Inferior nasal meatus
Horizontal plate of palatine bone
Soft palate
Opening of auditory (Eustachian) tube

Speculum View

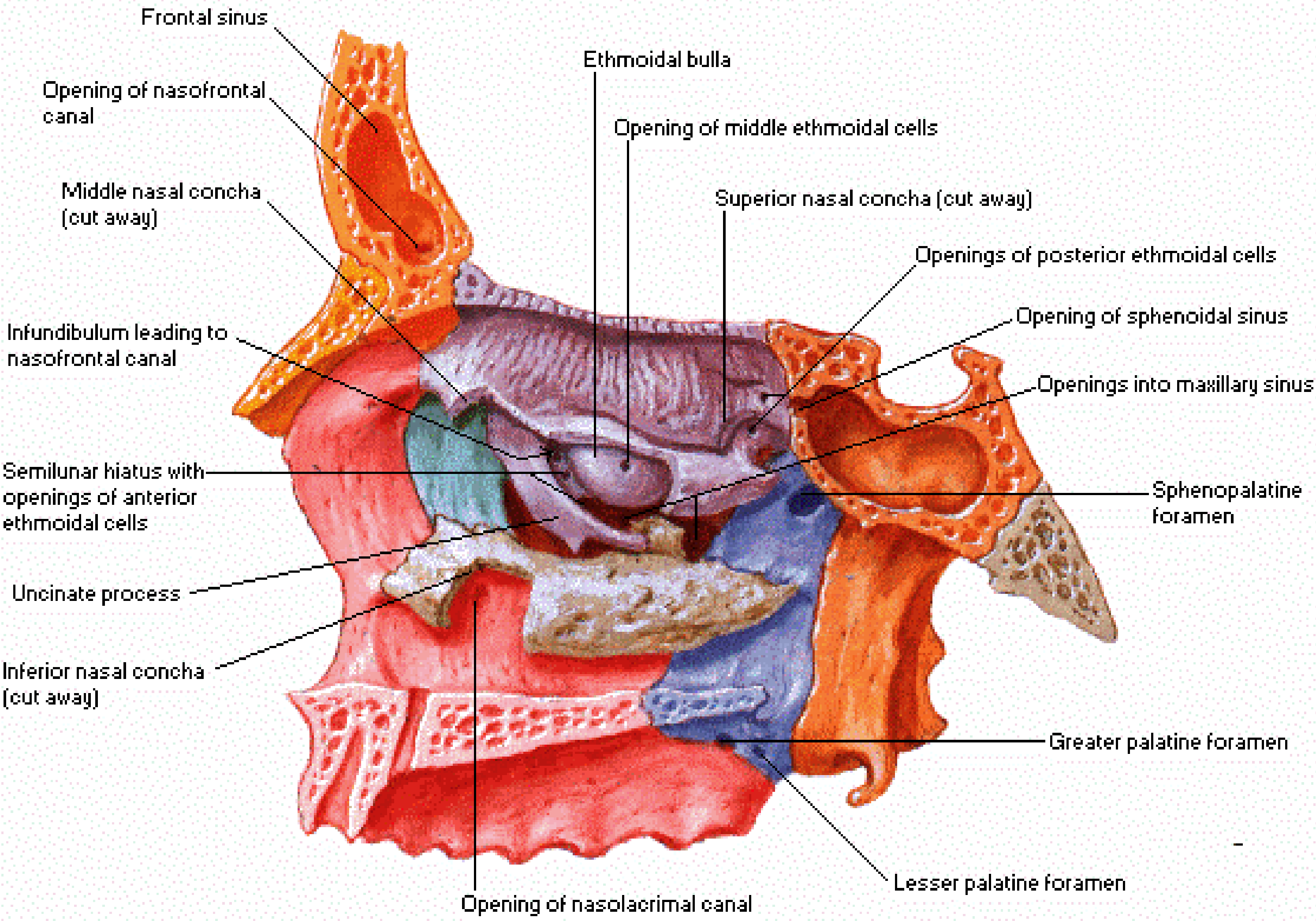




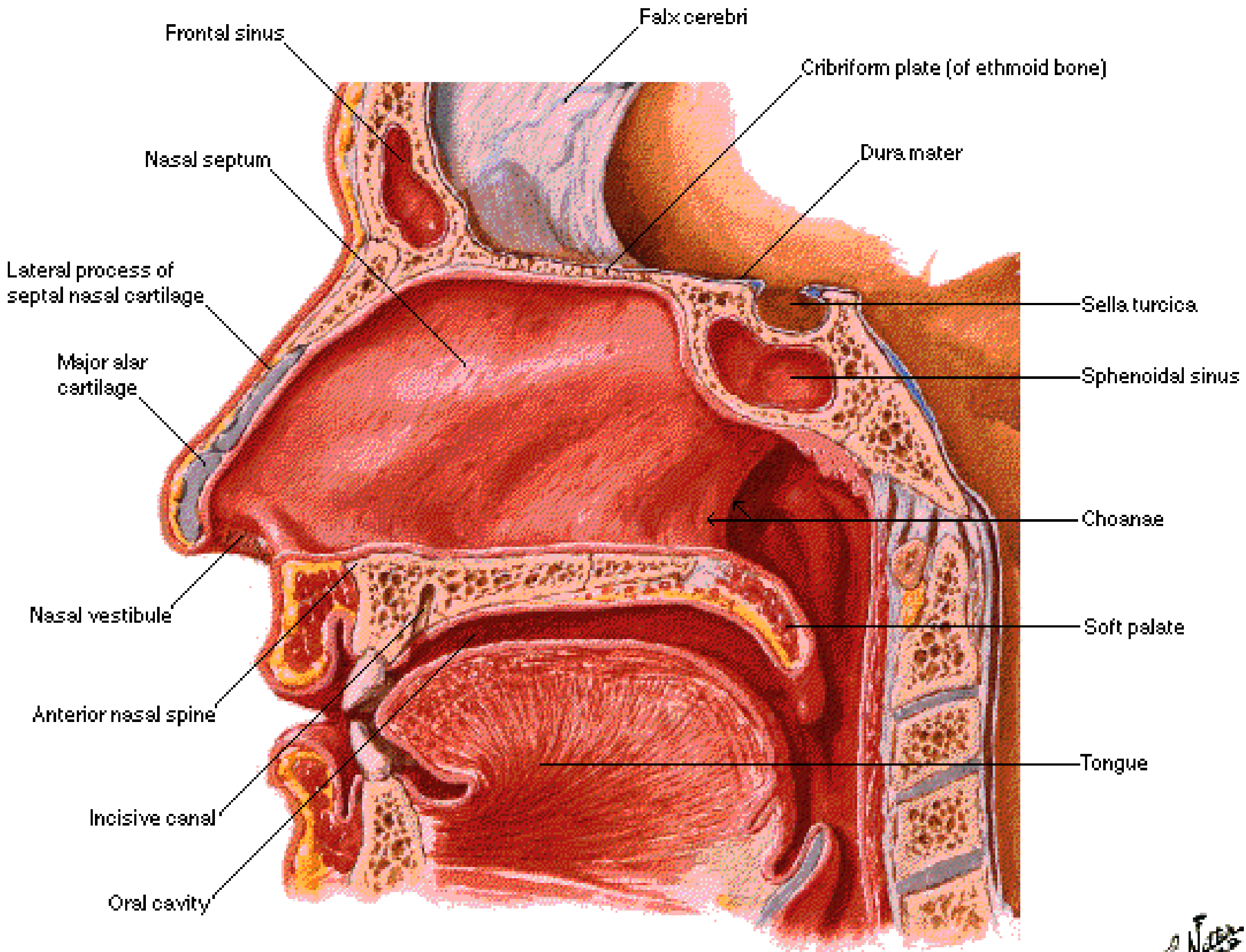
Frontal sinus
Cribriform plate of ethmoid bone
Probe passing from semilunar hiatus into frontal sinus via nasal frontal duct
Probe in opening of sphenoidal sinus
Middle nasal concha (cut surface)
Sphenoidal sinus
Ethmoidal bulla
Openings of middle ethmoidal cells
Superior nasal meatus with openings posterior of ethmoidal cells
Semilunar hiatus with openings of anterior ethmoidal cells
Basilar part of occipital bone
Uncinate process
Anterior tubercle of atlas (C1 vertebra)
Inferior nasal concha (cut surface)
Dens of axis (C2 vertebra
Torus tubarius
Opening of nasolacrimal duct
Inferior nasal meatus
Opening of maxillary sinus
Opening of auditory (Eustachian) tube


Lacrimal bone
Uncinate process of ethmoid bone
Middle nasal concha of ethmoid bone
Superior nasal concha of ethmoid bone
Cribriform plate of ethmoid bone
Supreme nasal concha of ethmoid bone
Sphenoethmoidal recess
Orbital process of palatine bone
Sphenopalatine foramen
Sphenoidal sinus
Sphenoidal process of palatine bone
Basilar part of occipital bone
Medial plate of pterygoid process of (part of sphenoid bone)
Lateral plates of pterygoid process (part of sphenoid bone)
Hamulus of sphenoid bone
Posterior nasal spine of palatine bone
Perpendicular plate of palatine bone
Horizontal plate of palatine bone
Inferior nasal concha
Alveolar process of maxilla bone
Incisive canal of maxilla bone
Palatine process of maxilla bone
Anterior nasal spine of maxilla bone
Alar fibrofatty tissue
Greater alar cartilage
Lateral nasal cartilage
Frontal process of maxilla bone
Agger nasi
Nasal bone
Spine of frontal bone
Frontal sinus
Squama of frontal bone

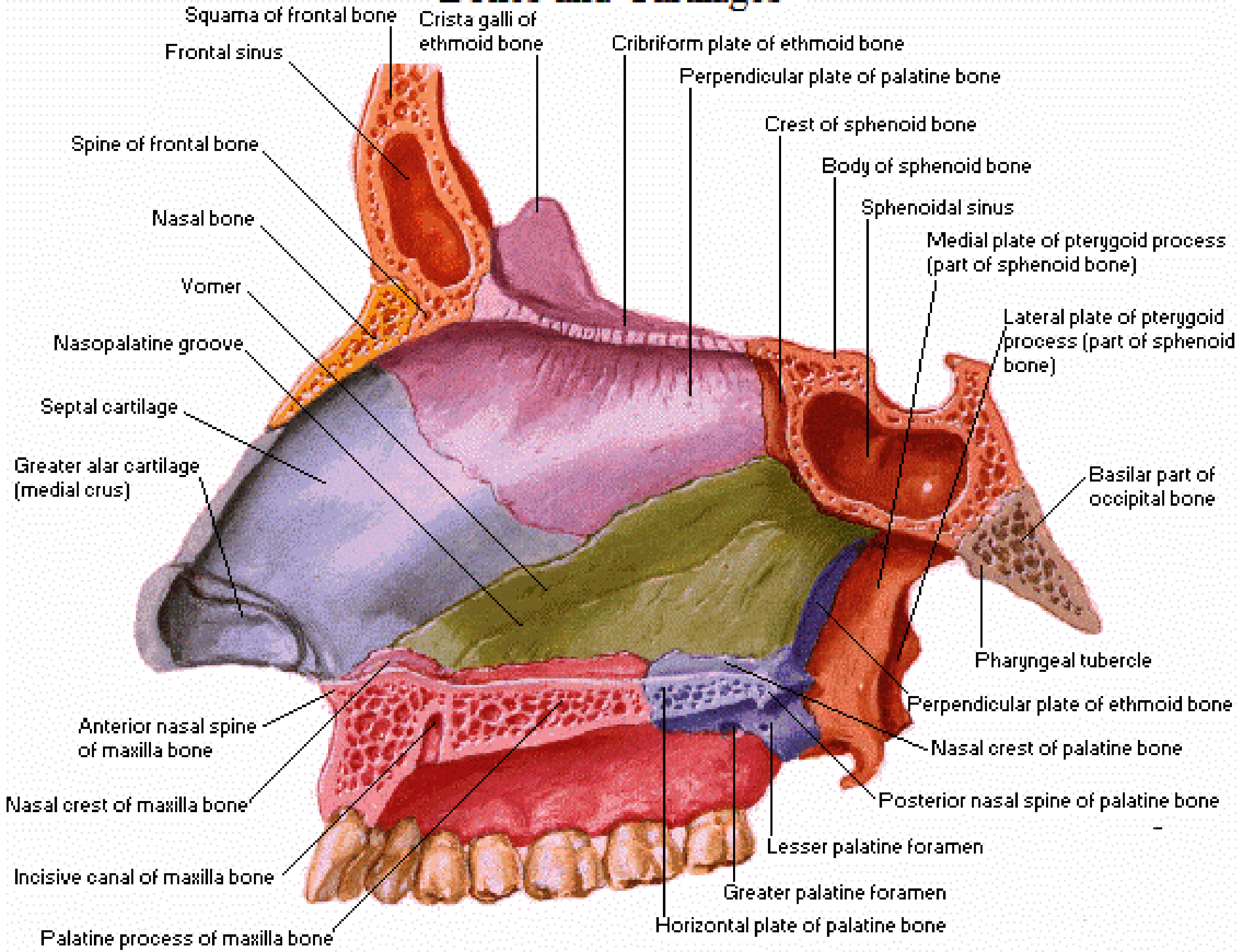
Nasal Conchae Partly Removed



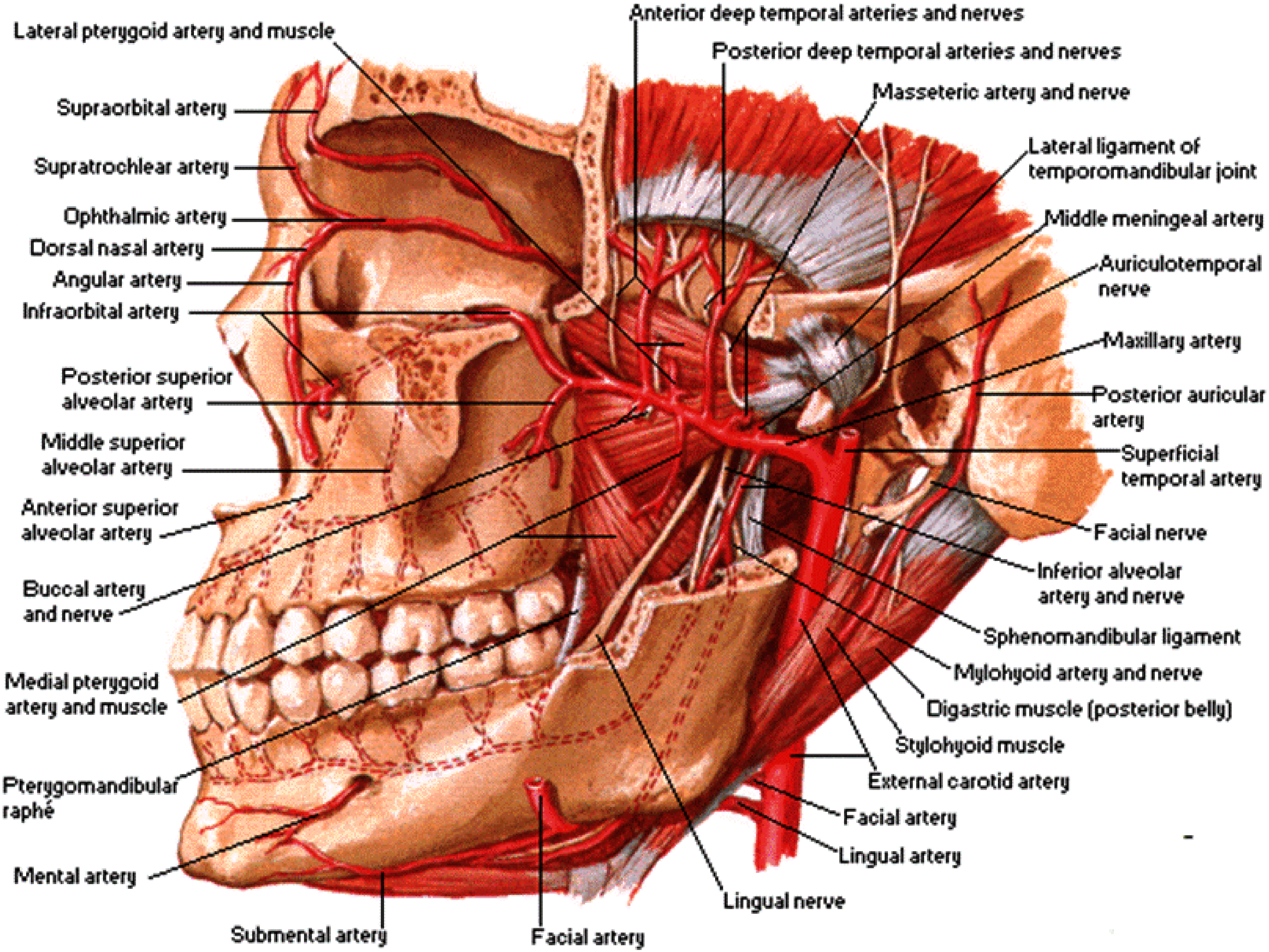
Medial Nasal Wall [Septum]



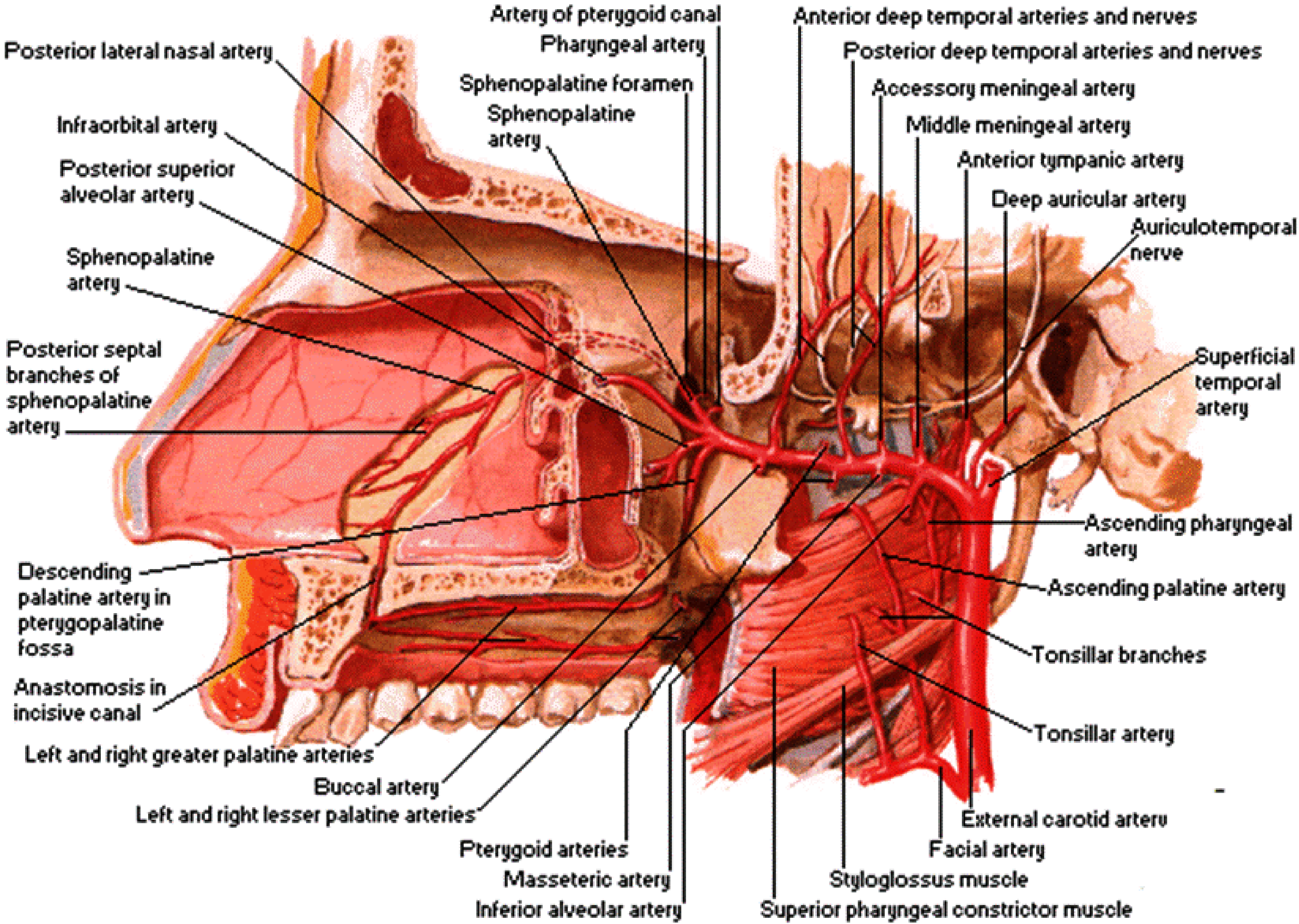
Bones and Cartilages



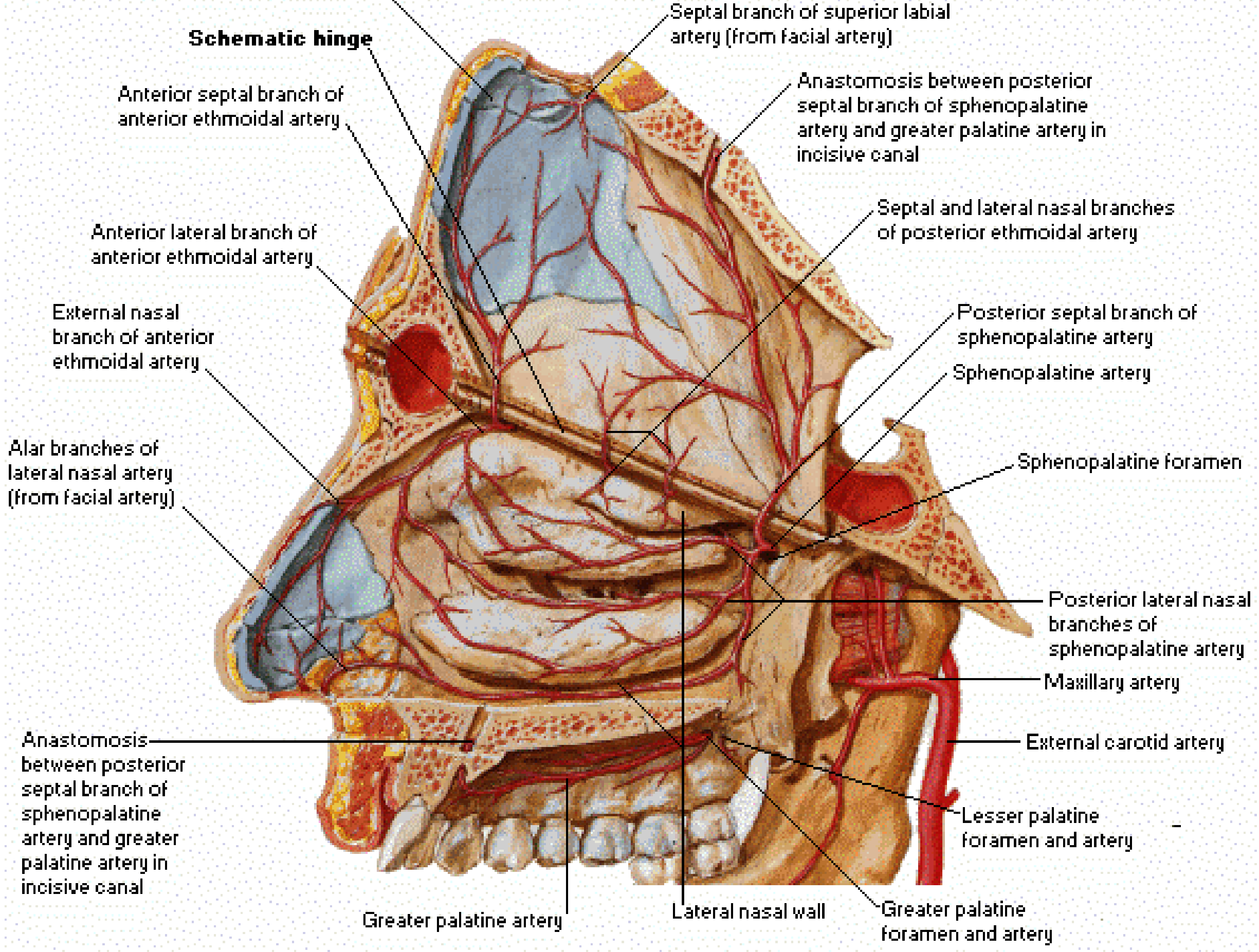
Orbitomaxillary Distribution



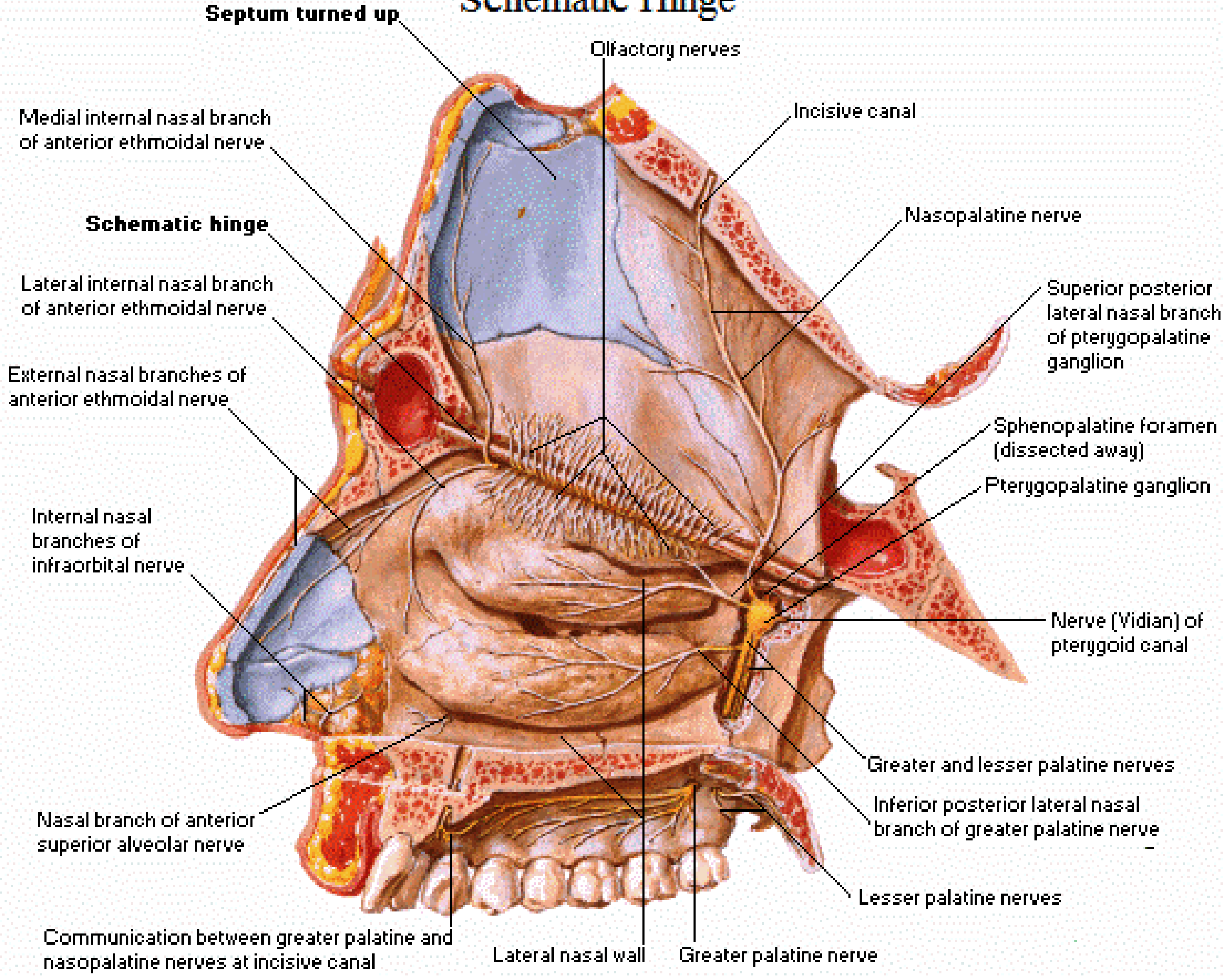
Nasopalatine Distribution



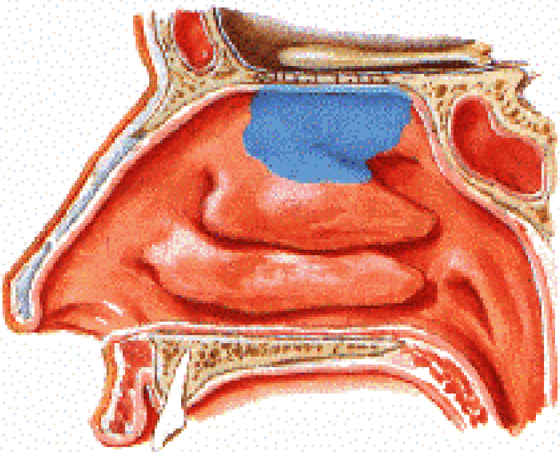
Schematic Hinge



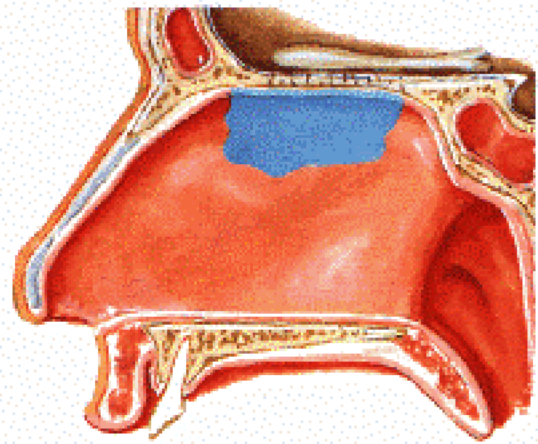
Schematic Hinge



Distribution of Olfactory Mucosa



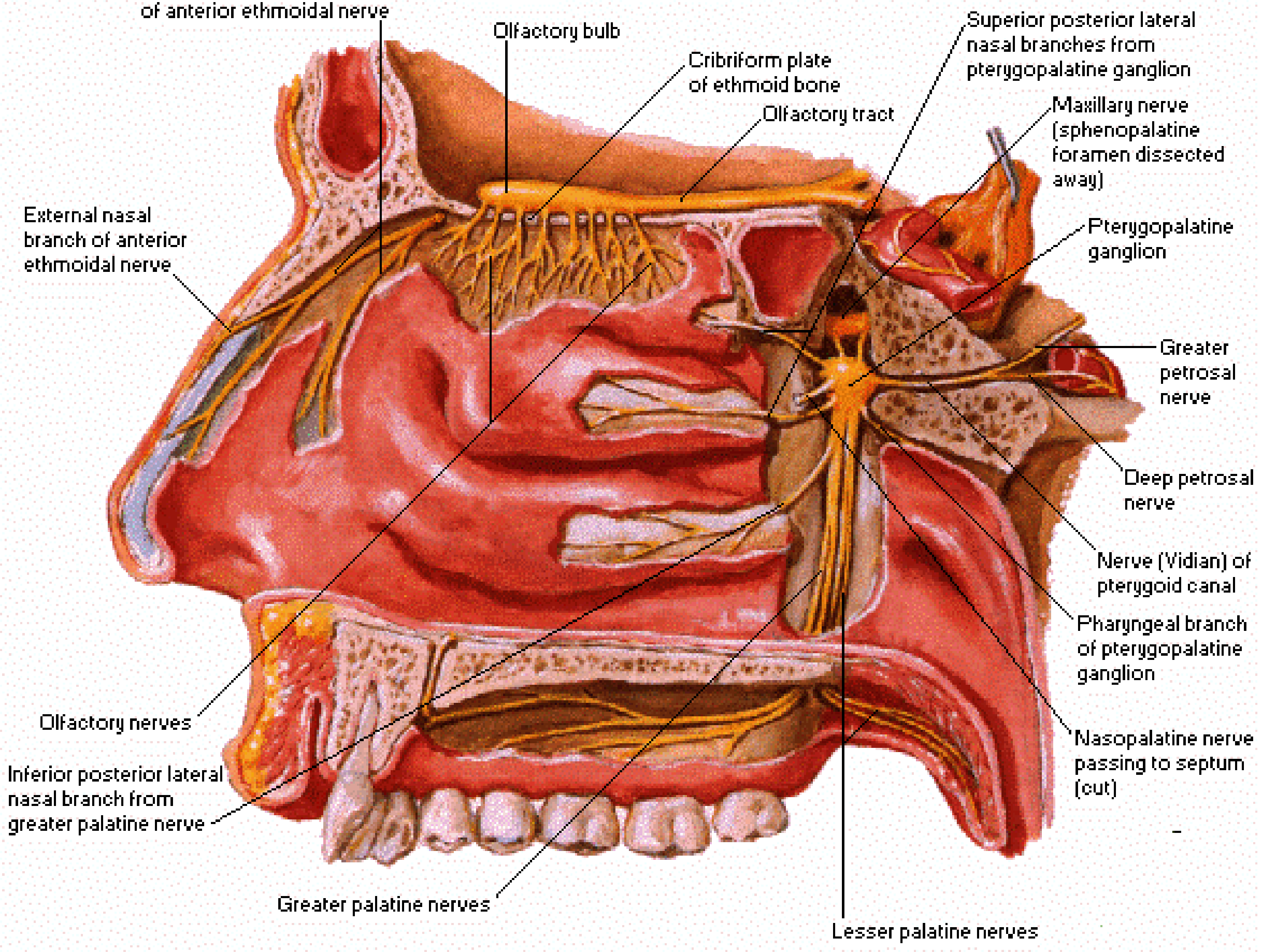
Lateral nasal wall



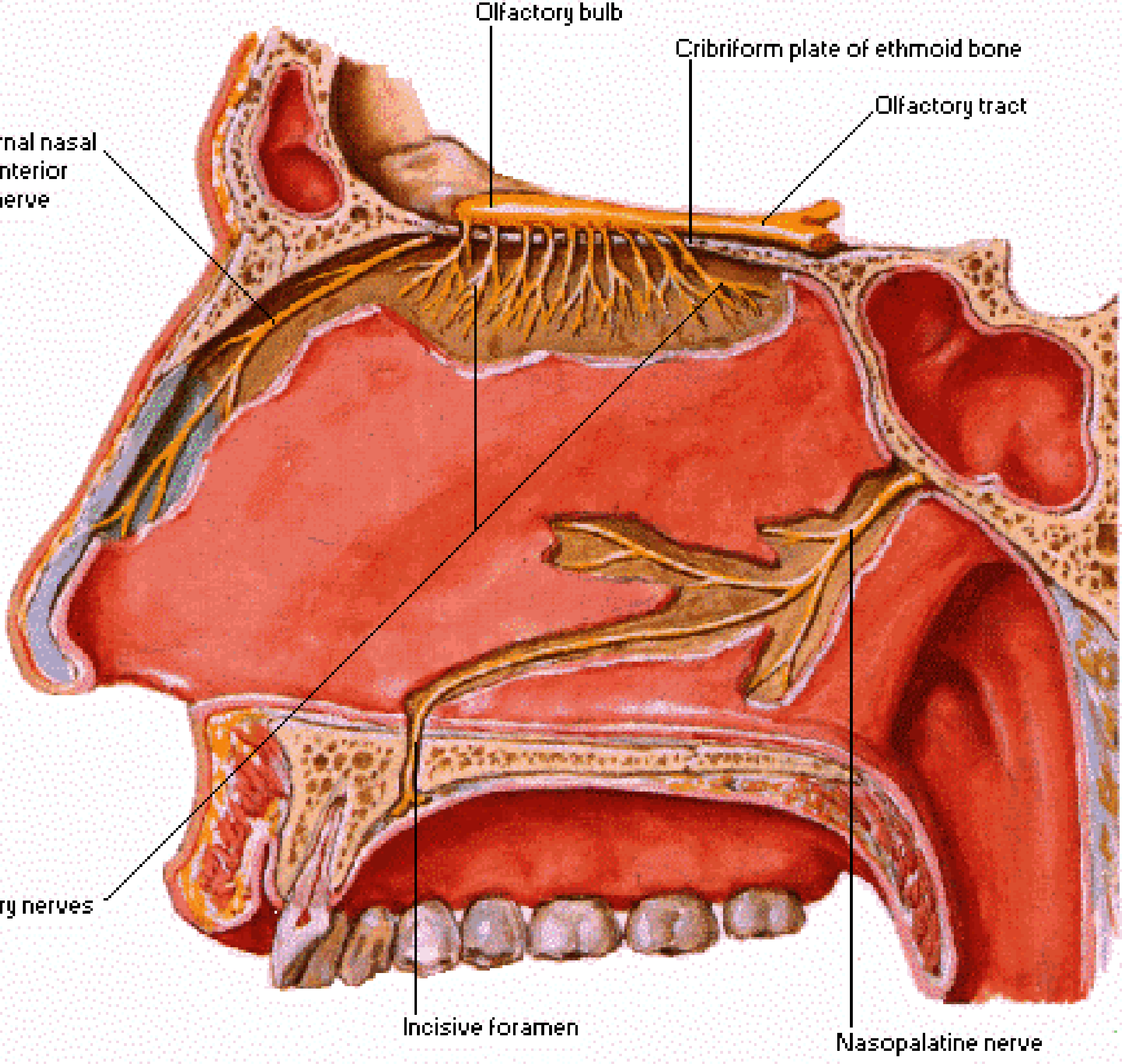
Nasal septum

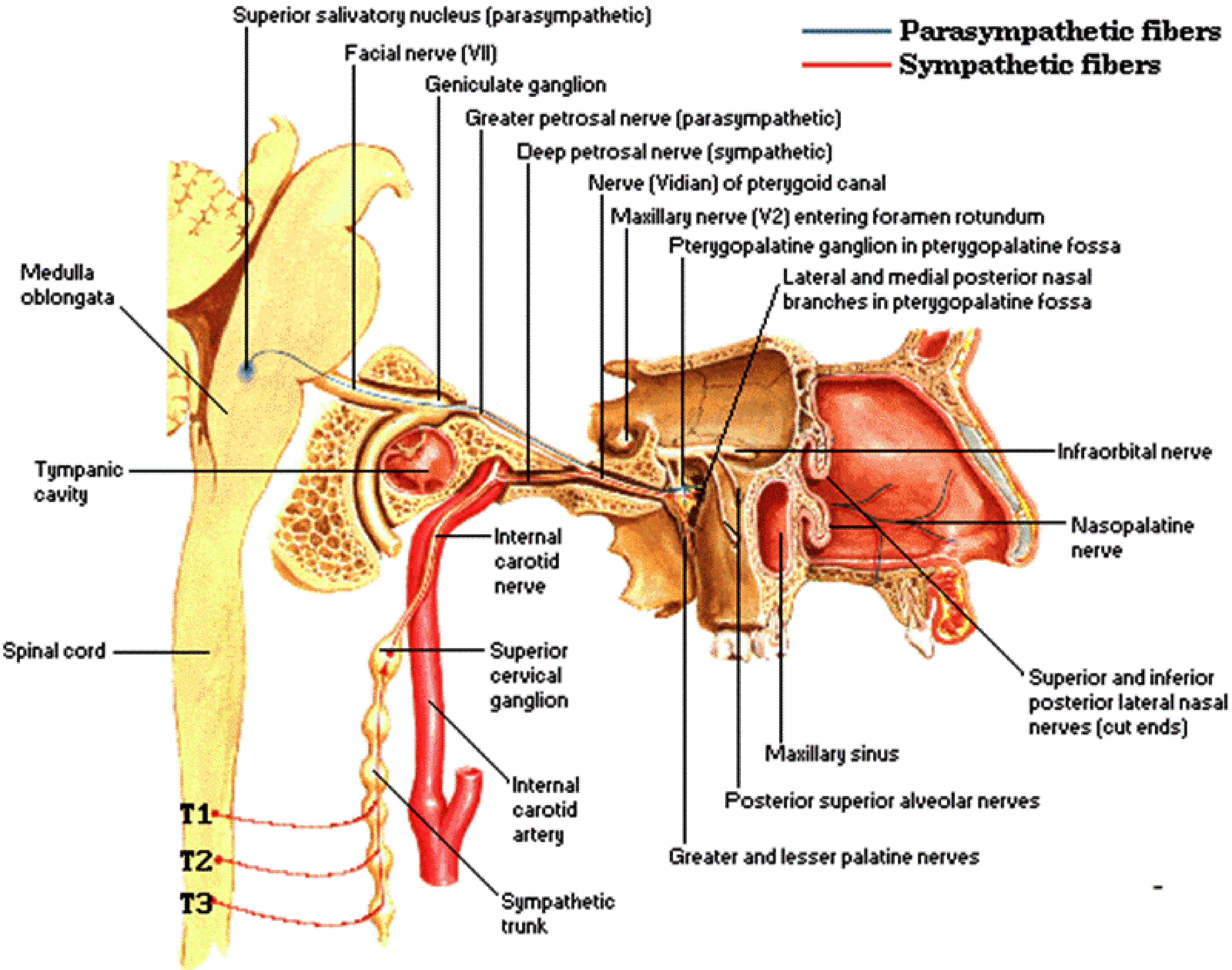
Note: Distribution of olfactory mucosa is shaded blue.

Lateral Nasal Wall

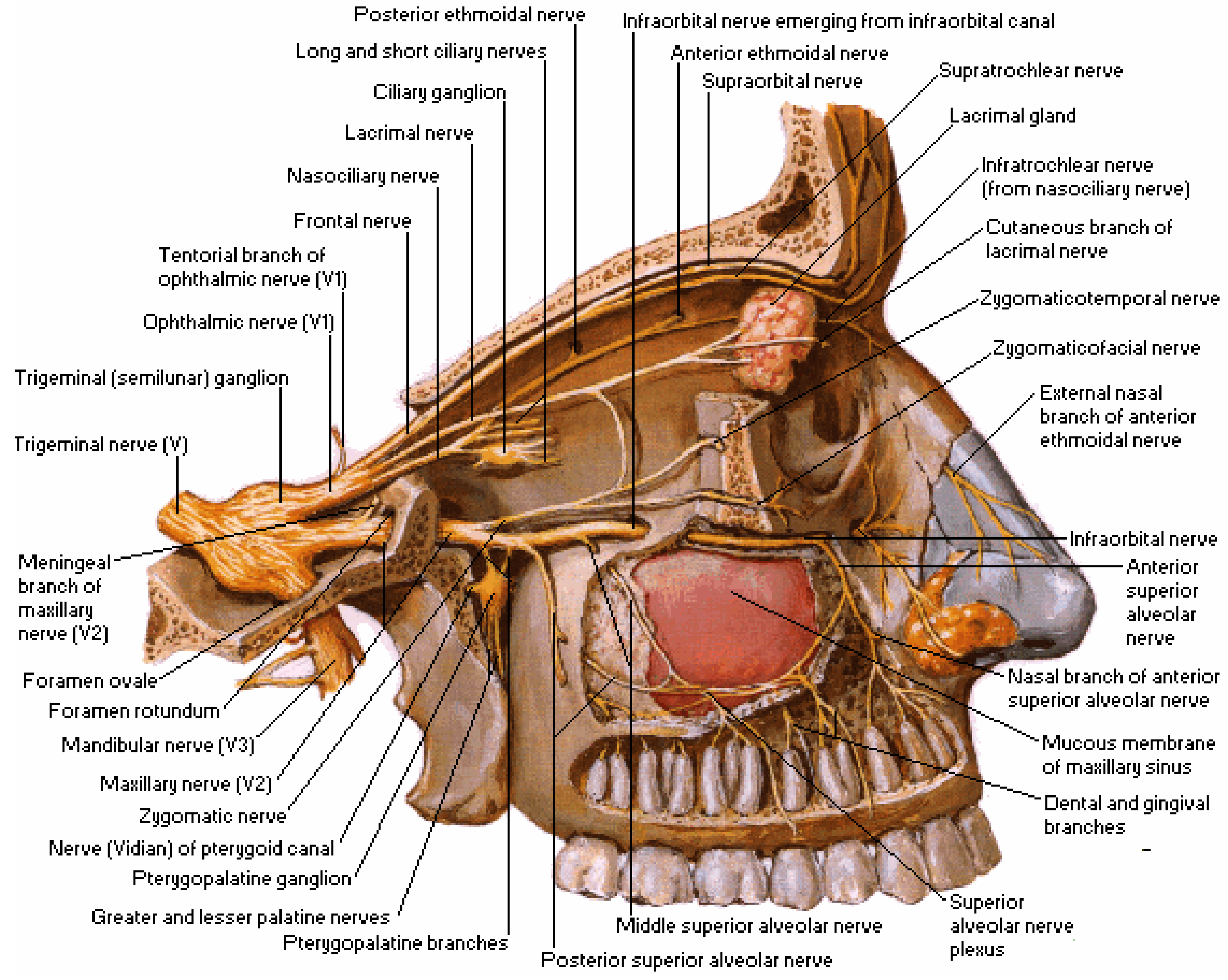


Nasal Septum



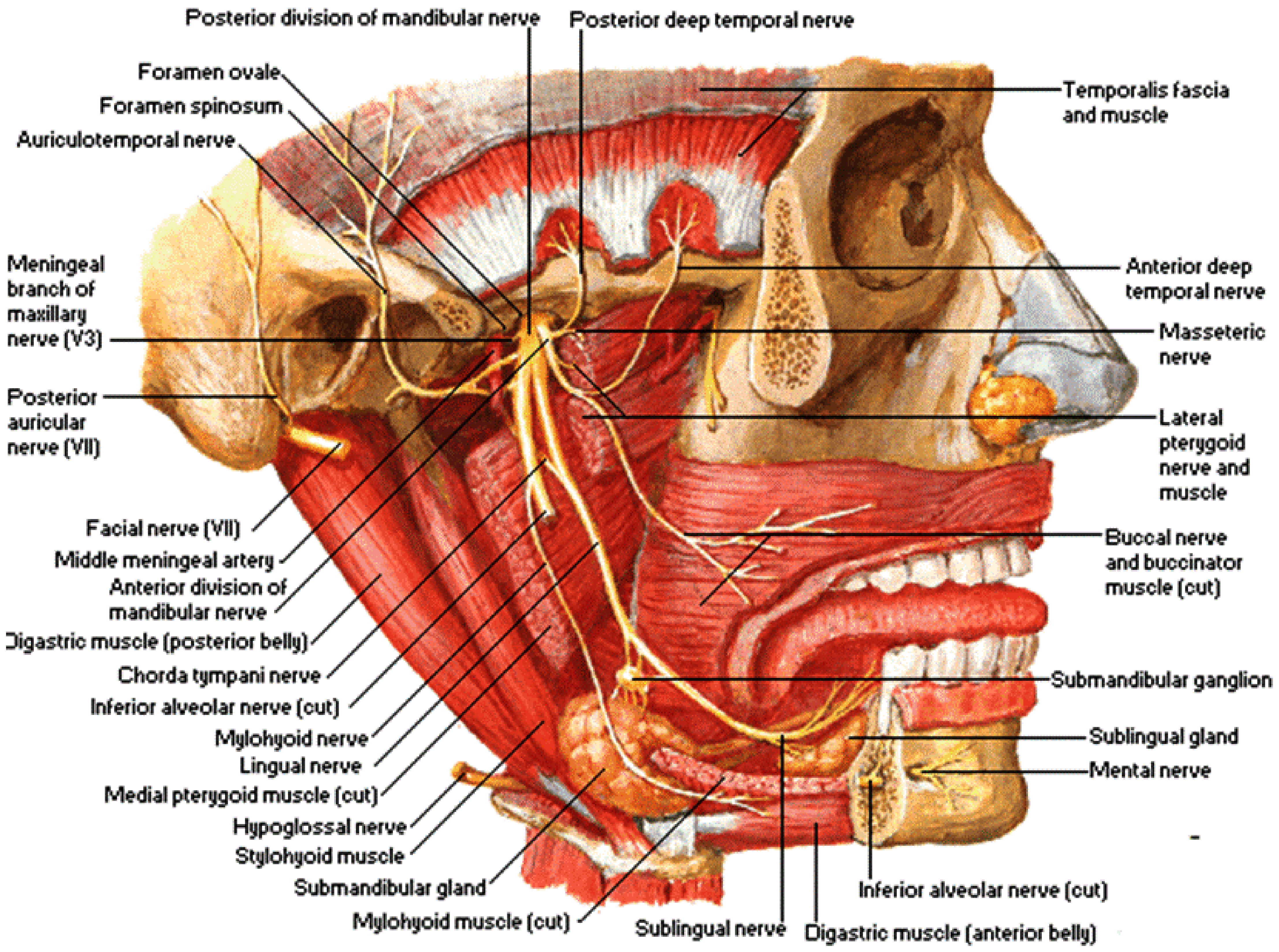


Parasympathetic fibers
Sympathetic fibers
Superior salivatory nucleus (parasympathetic)
Facial nerve (VII)
Geniculate ganglion
Greater petrosal nerve (parasympathetic)
Deep petrosal nerve (sympathetic)
Nerve (Vidian) of pterygoid canal
Maxillary nerve (V2) entering foramen rotundum
Pterygopalatine ganglion in pterygopalatine fossa
Lateral and medial posterior nasal branches in pterygopalatine fossa
Medulla oblongata
Tympanic cavity
Infraorbital nerve
Internal carotid nerve
Nasopalatine nerve
Spinal cord
Superior cervical ganglion
Superior and inferior posterior lateral nasal nerves (cut ends)
Maxillary sinus
Internal carotid artery
Posterior superior alveolar nerves
T1
T2
T3
Greater and lesser palatine nerves
Sympathetic trunk



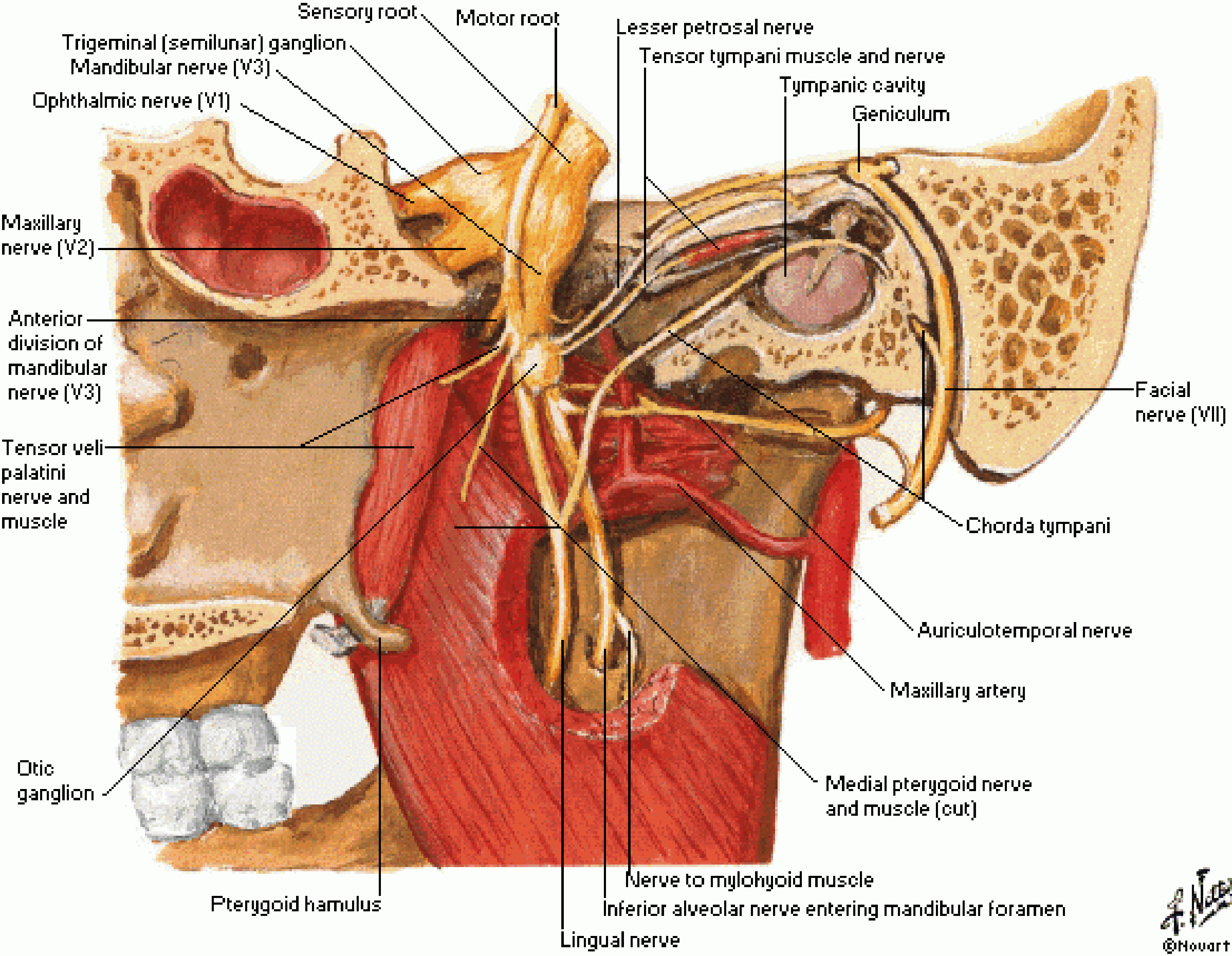
Posterior ethmoidal nerve
Infraorbital nerve emerging from infraorbital canal
Long and short ciliary nerves
Anterior ethmoidal nerve
Supraorbital nerve
Supratrochlear nerve
Ciliary ganglion
Lacrimal gland
Lacrimal nerve
Infratrochlear nerve
(from nasociliary nerve)
Nasociliary nerve
Frontal nerve
Cutaneous branch of
lacrimal nerve
Tentorial branch of
ophthalmic nerve (V1)
Zygomaticotemporal nerve
Ophthalmic nerve (V1)
Zygomaticofacial nerve
Trigeminal (semilunar) ganglion
External nasal
branch of anterior
ethmoidal nerve
Trigeminal nerve (V)
Infraorbital nerve
Meningeal
branch of
maxillary
nerve (V2)
Anterior
superior
alveolar
nerve
Foramen ovale
Nasal branch of anterior
superior alveolar nerve
Foramen rotundum
Mandibular nerve (V3)
Mucous membrane
of maxillary sinus
Maxillary nerve (V2)
Zygomatic nerve
Dental and gingival
branches
Nerve (Vidian) of pterygoid canal
Pterygopalatine ganglion
Superior
alveolar nerve
plexus
Greater and lesser palatine nerves
Middle superior alveolar nerve
Pterygopalatine branches
Posterior superior alveolar nerve

Lateral View

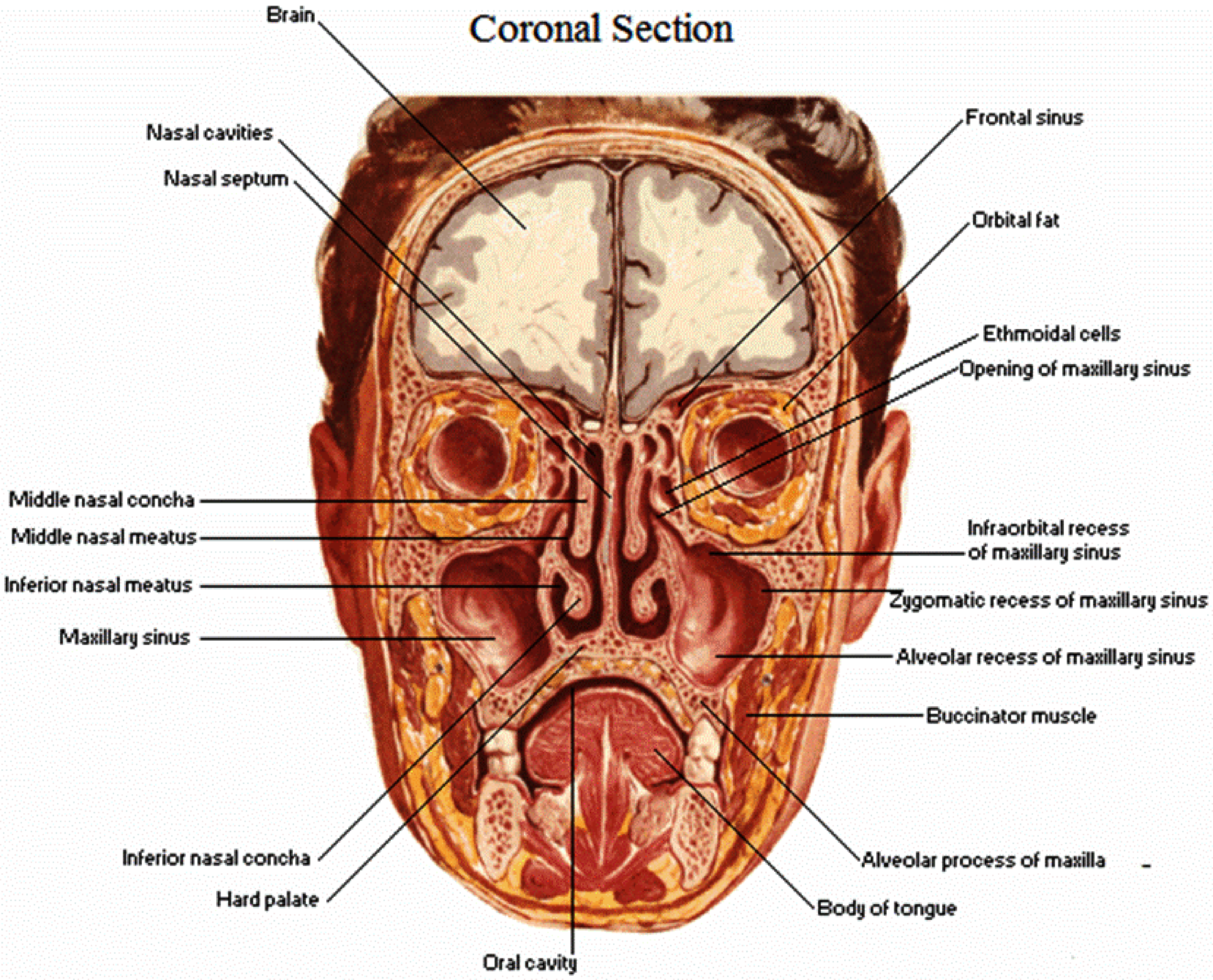


Mandibular Nerve [V3]

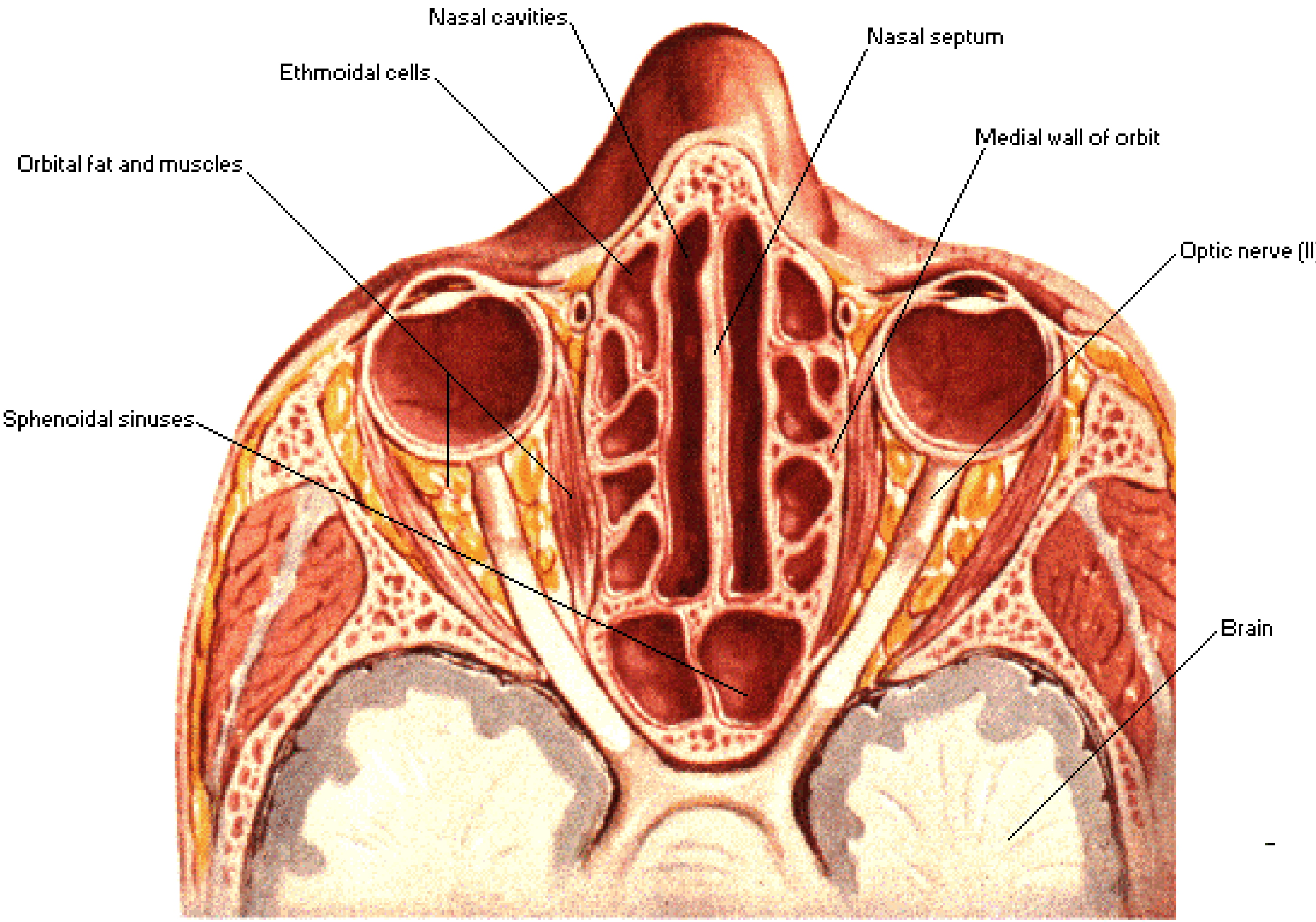
Medial View



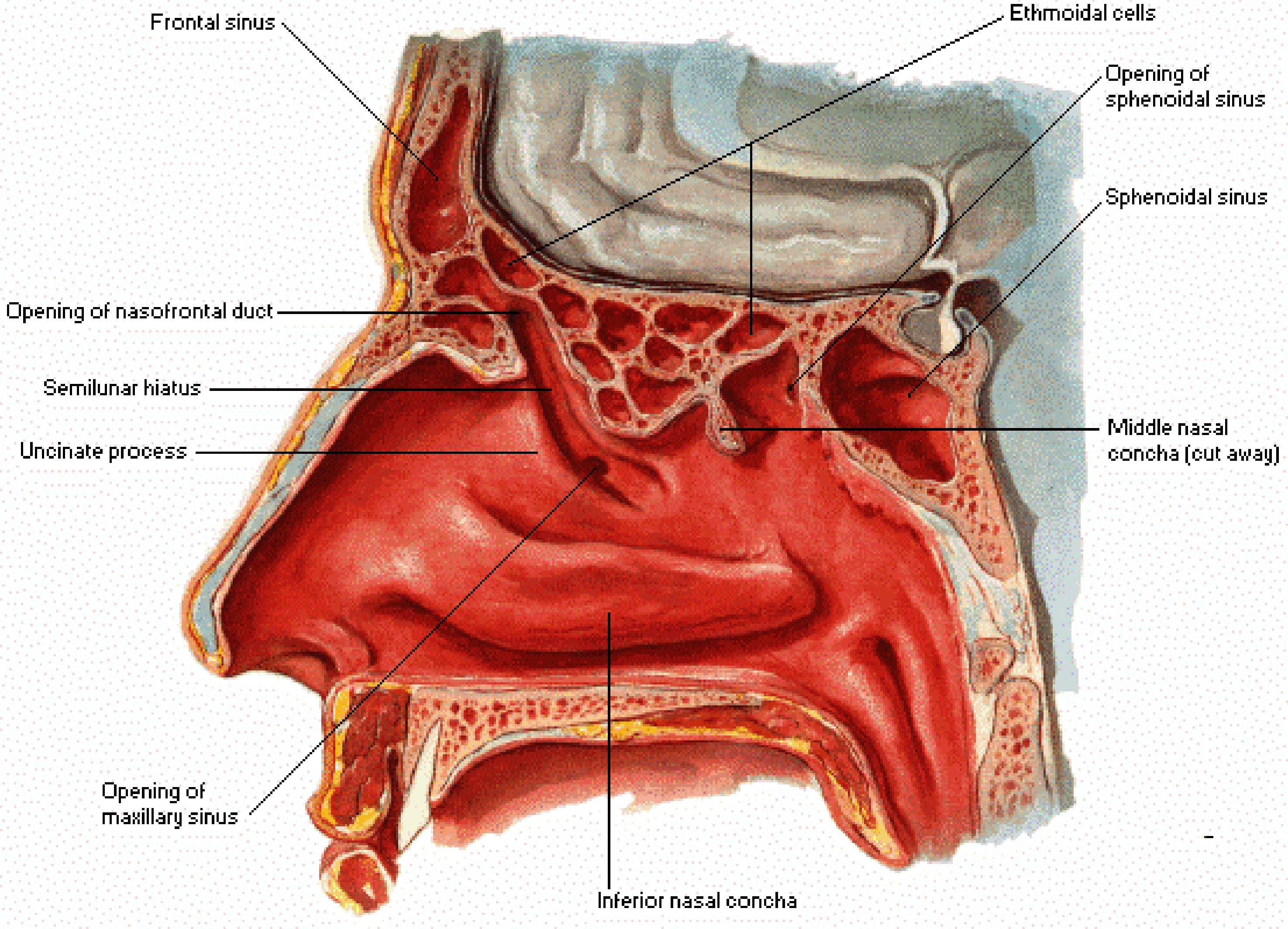
Coronal Section



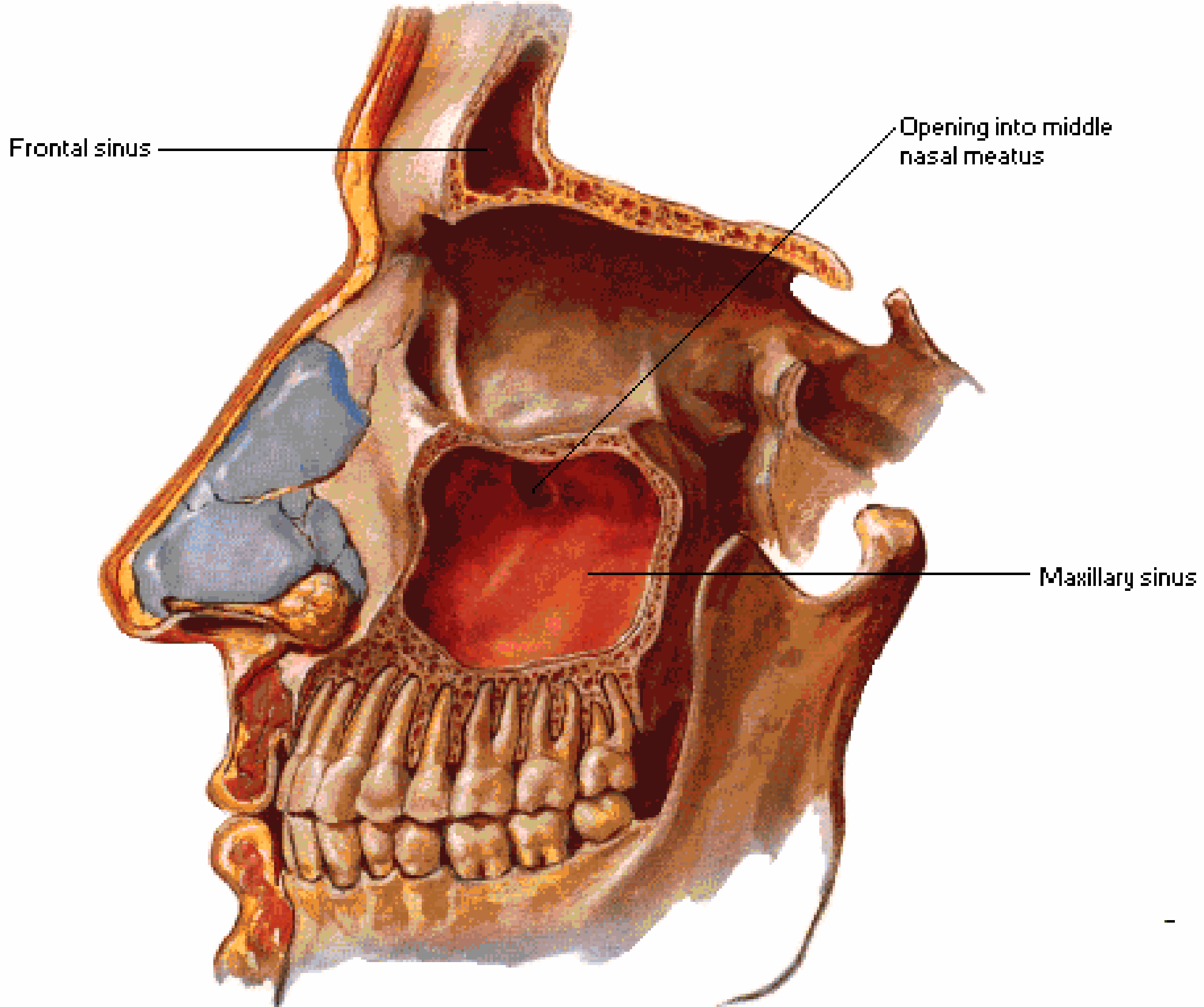
Horizontal Section



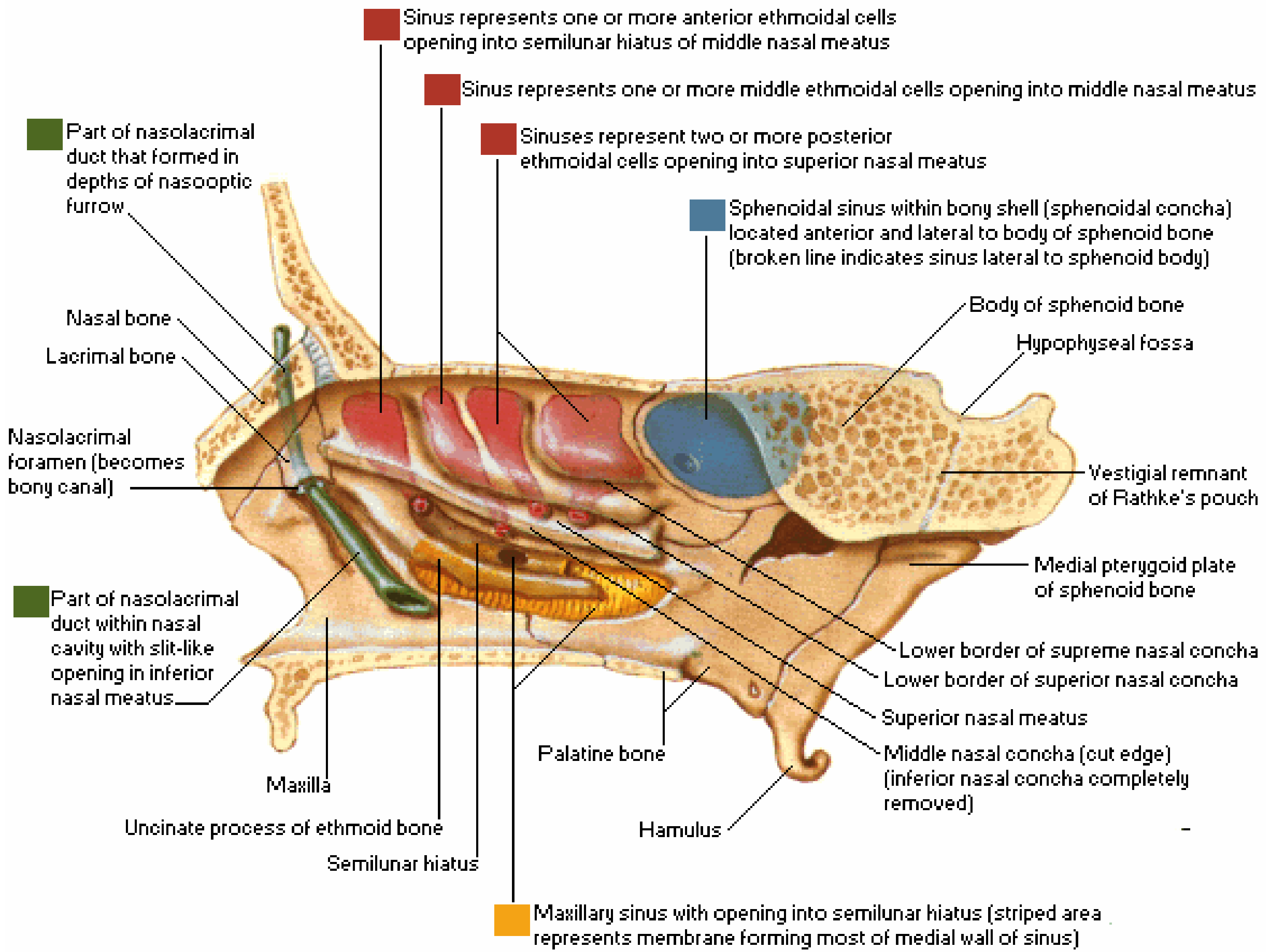
Sagittal Section



Lateral Dissection

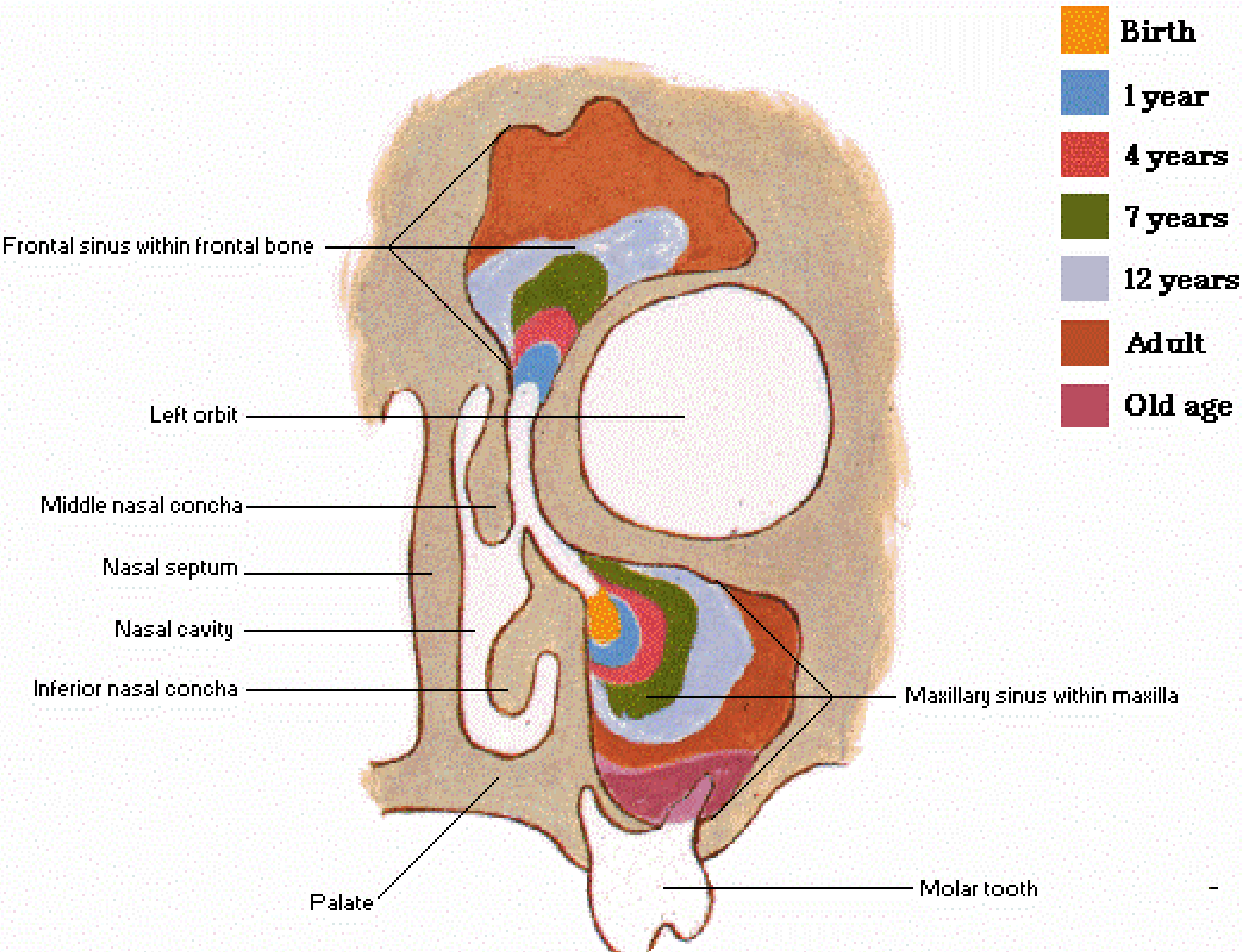


At Birth

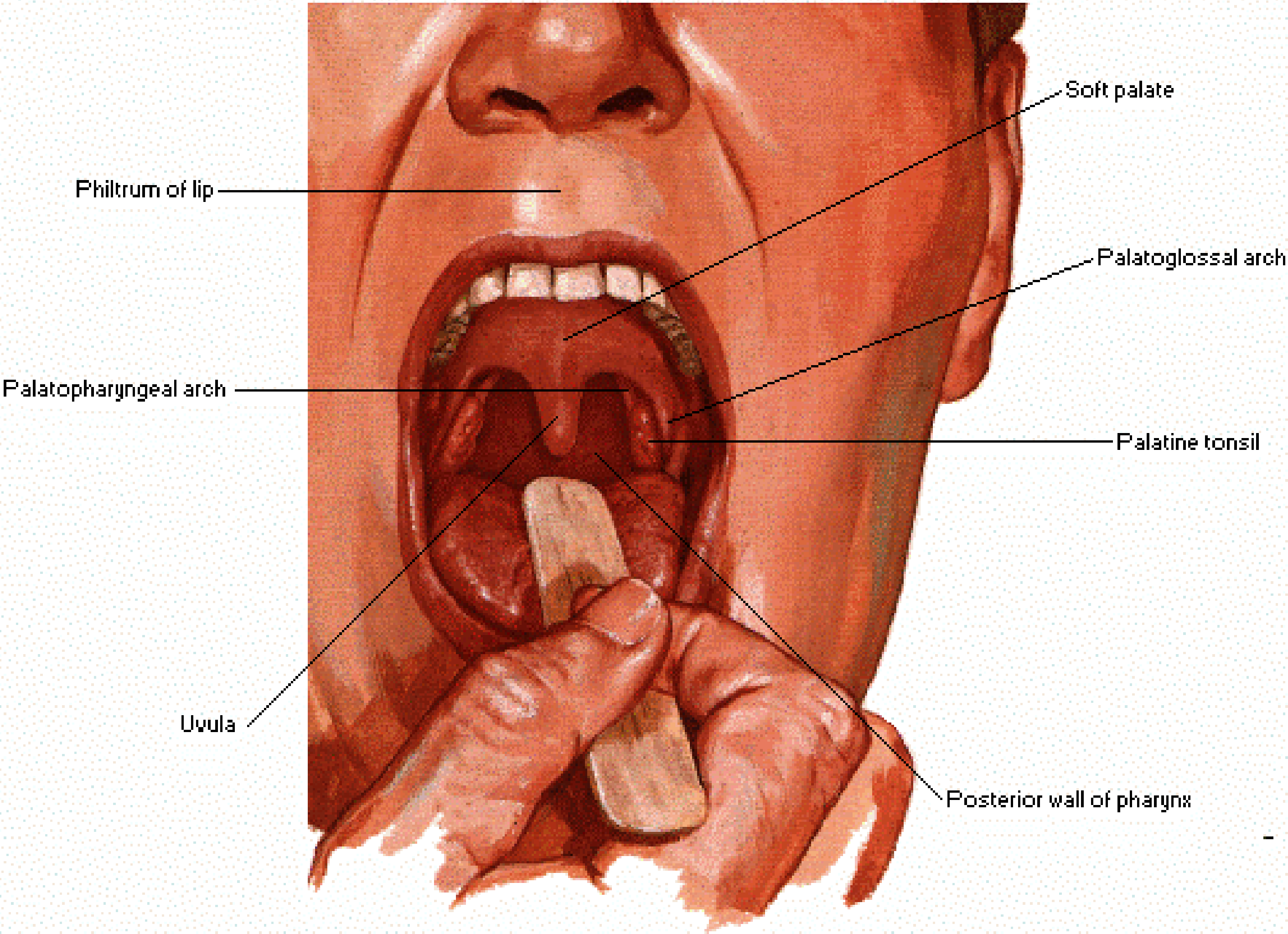


Sinus represents one or more anterior ethmoidal cells opening into semilunar hiatus of middle nasal meatus
Sinus represents one or more middle ethmoidal cells opening into middle nasal meatus
Part of nasolacrimal duct that formed in depths of nasooptic furrow
Sinuses represent two or more posterior ethmoidal cells opening into superior nasal meatus
Sphenoidal sinus within bony shell (sphenoidal concha) located anterior and lateral to body of sphenoid bone (broken line indicates sinus lateral to sphenoid body)
Body of sphenoid bone
Hypophyseal fossa
Nasal bone
Lacrimal bone
Nasolacrimal foramen (becomes bony canal)
Vestigial remnant of Rathke's pouch
Medial pterygoid plate of sphenoid bone
Part of nasolacrimal duct within nasal cavity with slit-like opening in inferior nasal meatus
Lower border of supreme nasal concha
Lower border of superior nasal concha
Superior nasal meatus
Palatine bone
Middle nasal concha (cut edge) (inferior nasal concha completely removed)
Maxilla
Uncinate process of ethmoid bone
Hamulus
Semilunar hiatus
Maxillary sinus with opening into semilunar hiatus (striped area represents membrane forming most of medial wall of sinus)

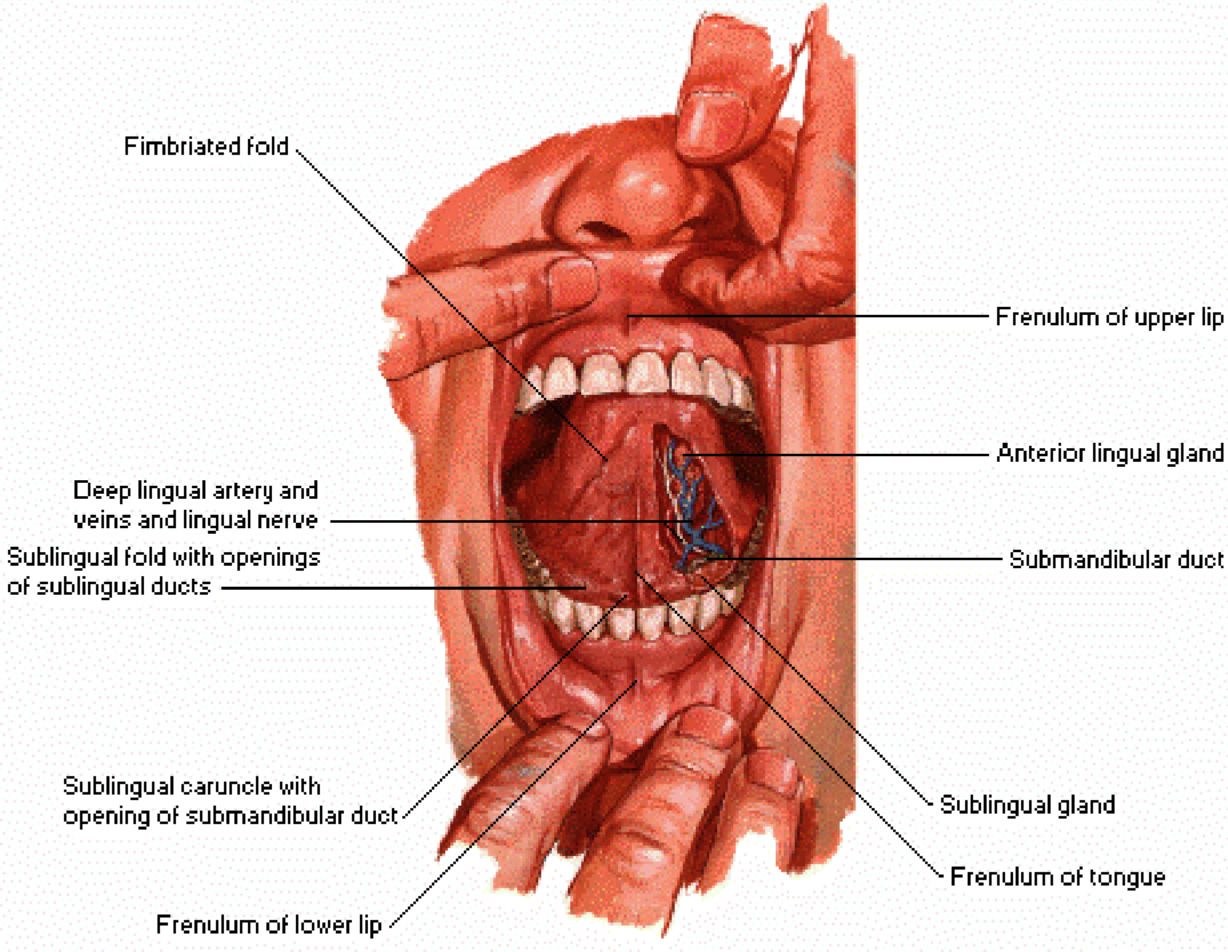
Growth throughout Life



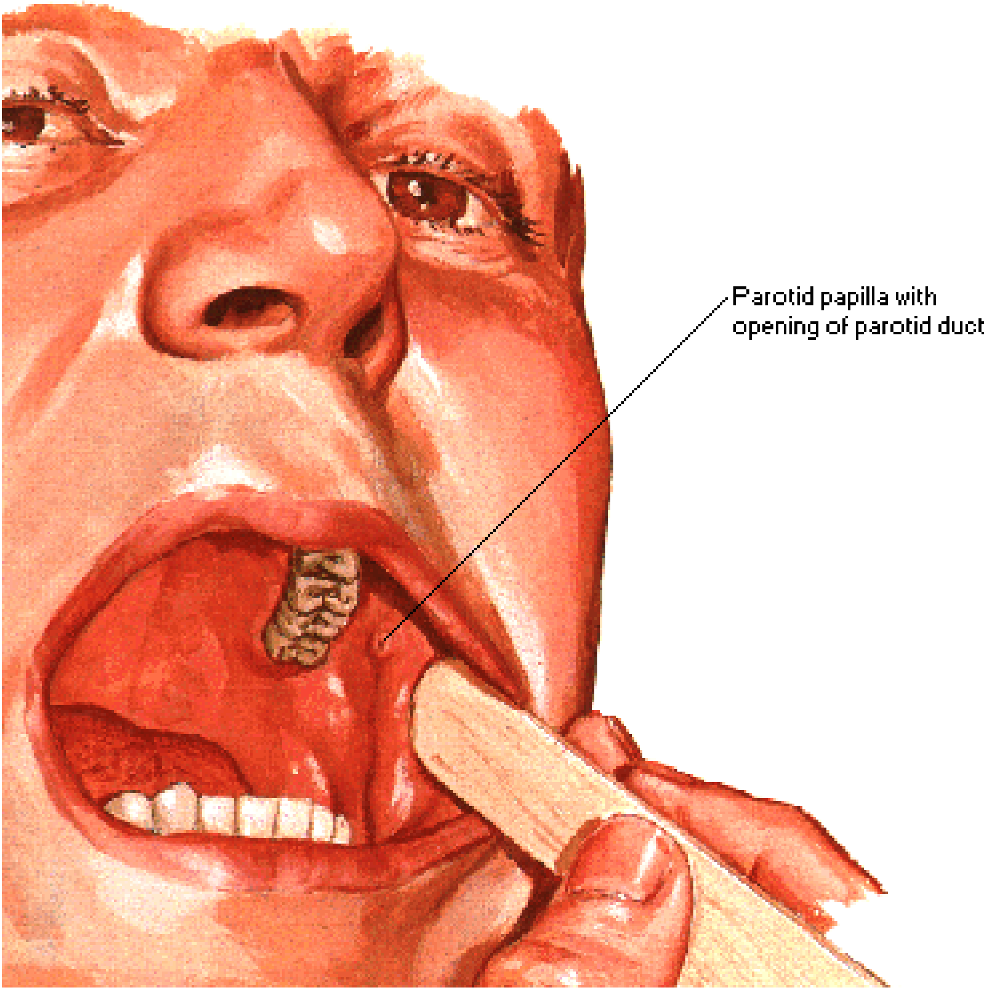
Dorsum of Tongue and Palate



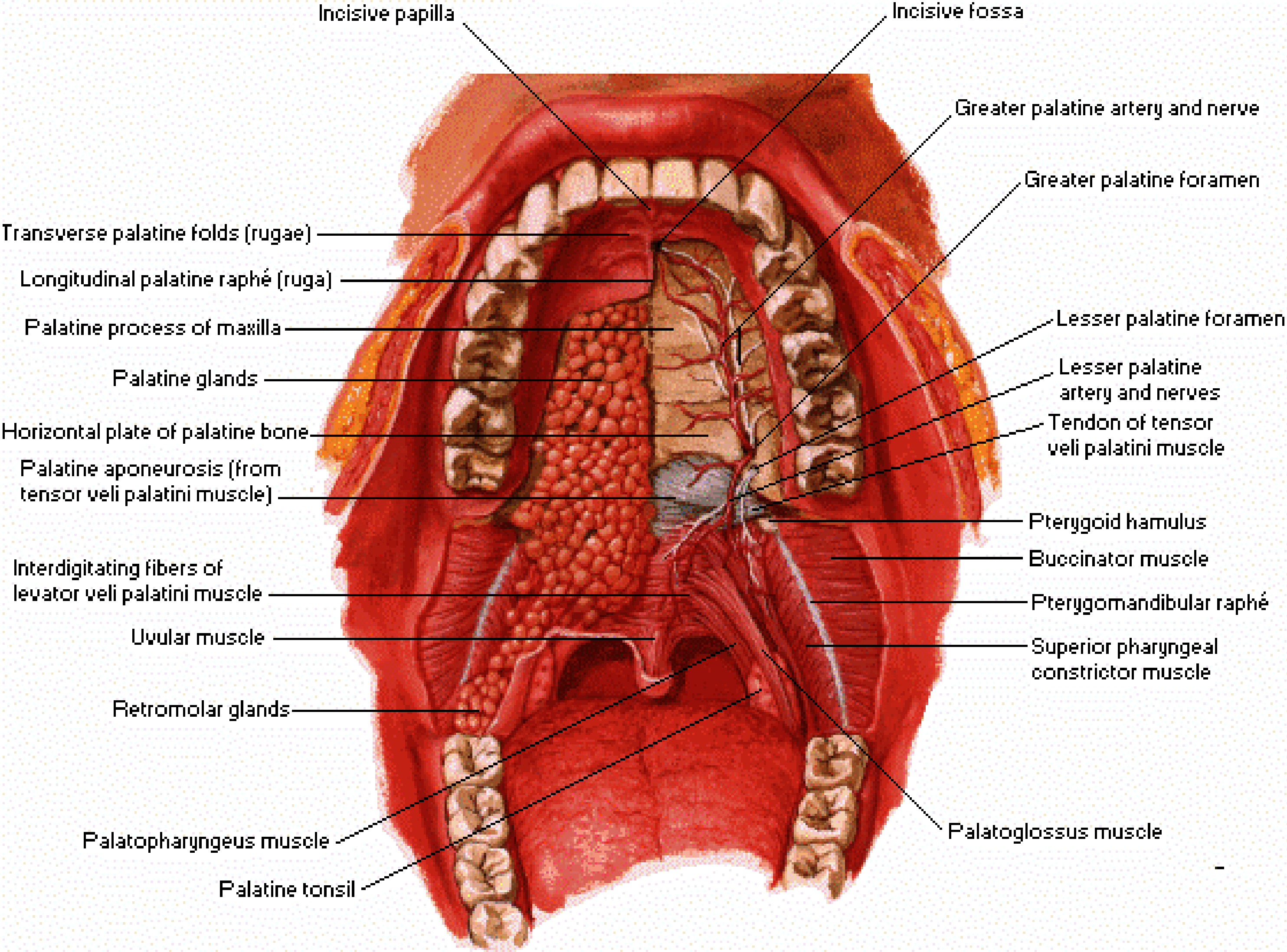
Sublingual Region - Anterior Vestibule



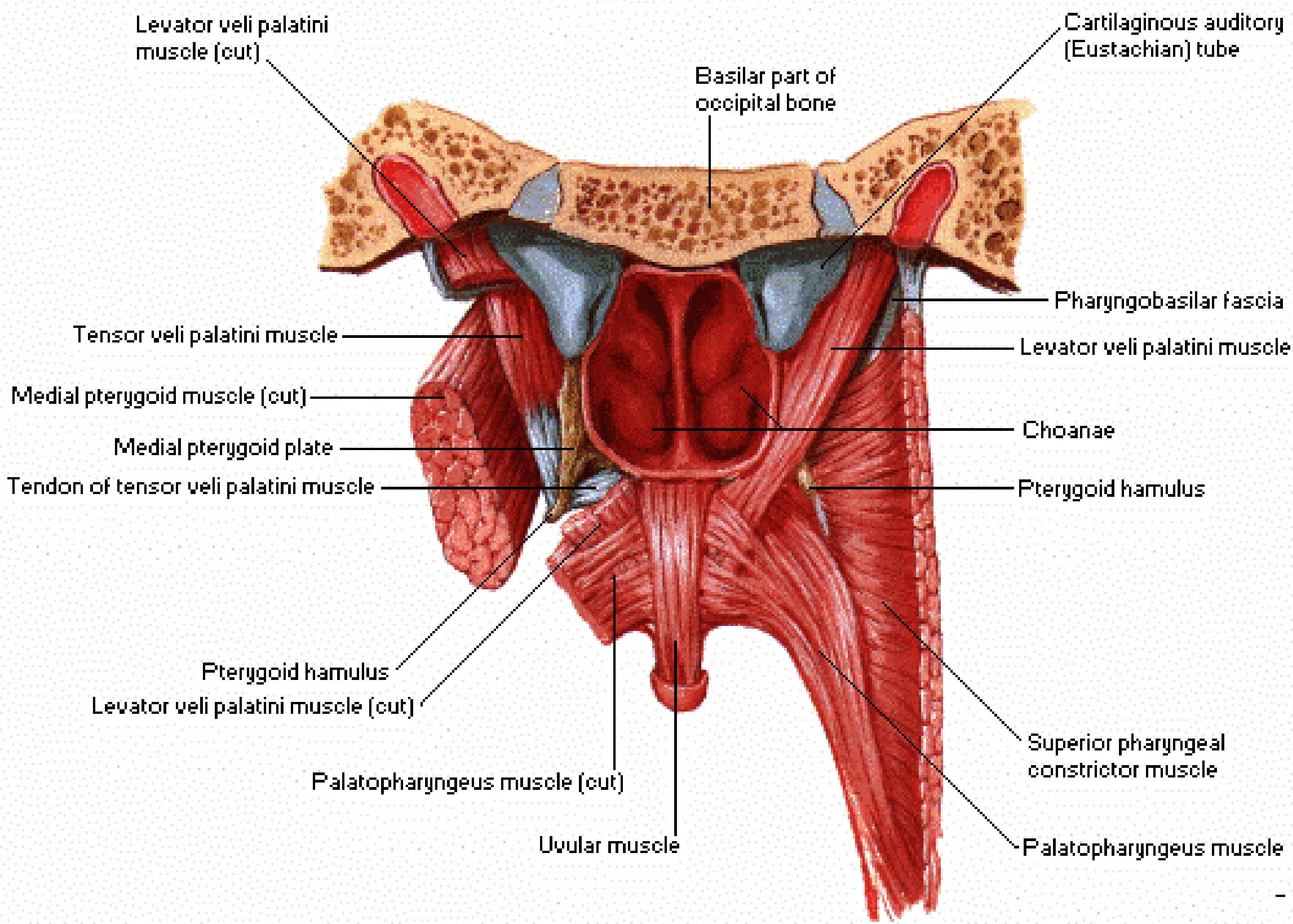
Lateral Oral Vestibule



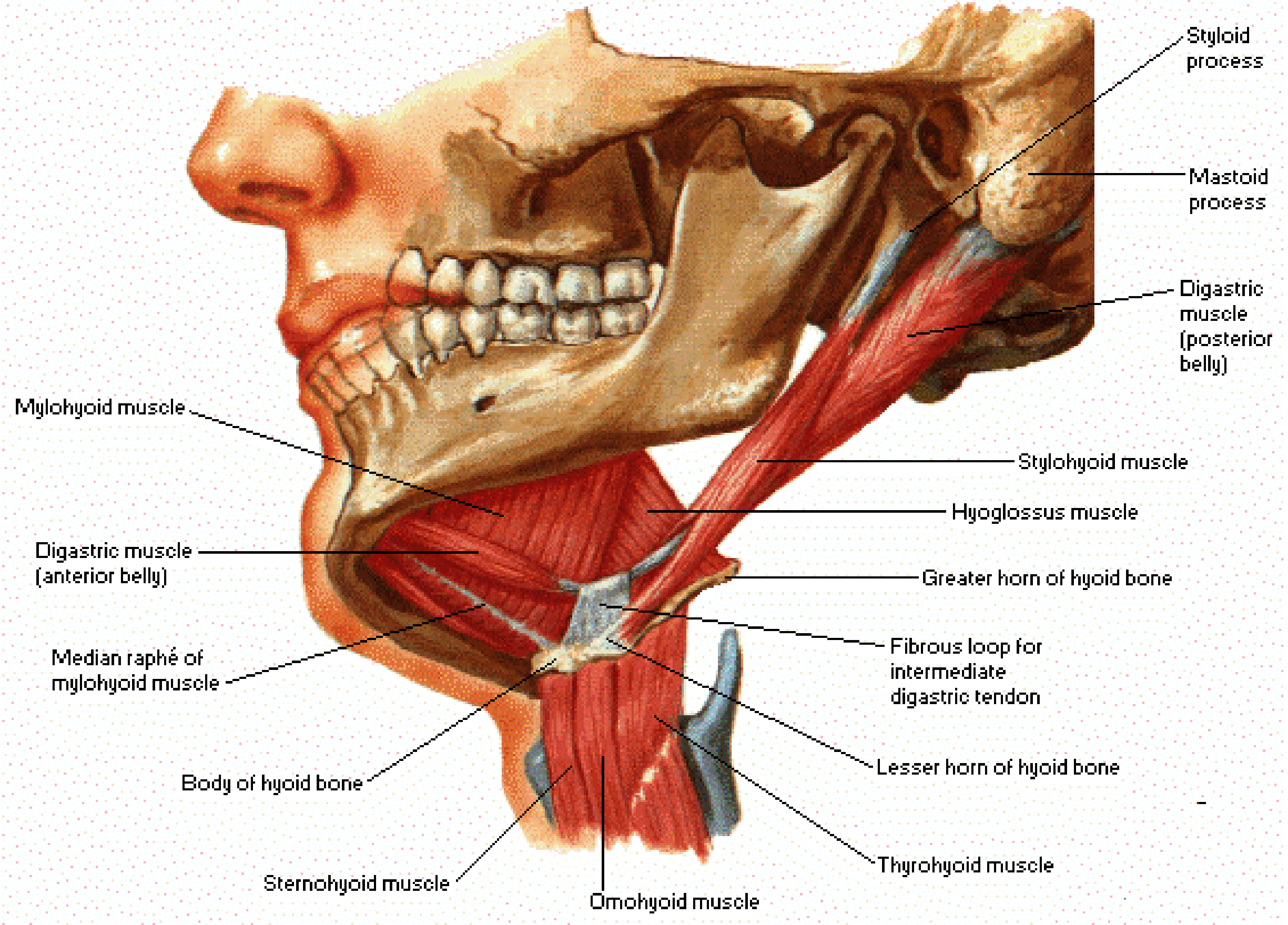
Anterior View



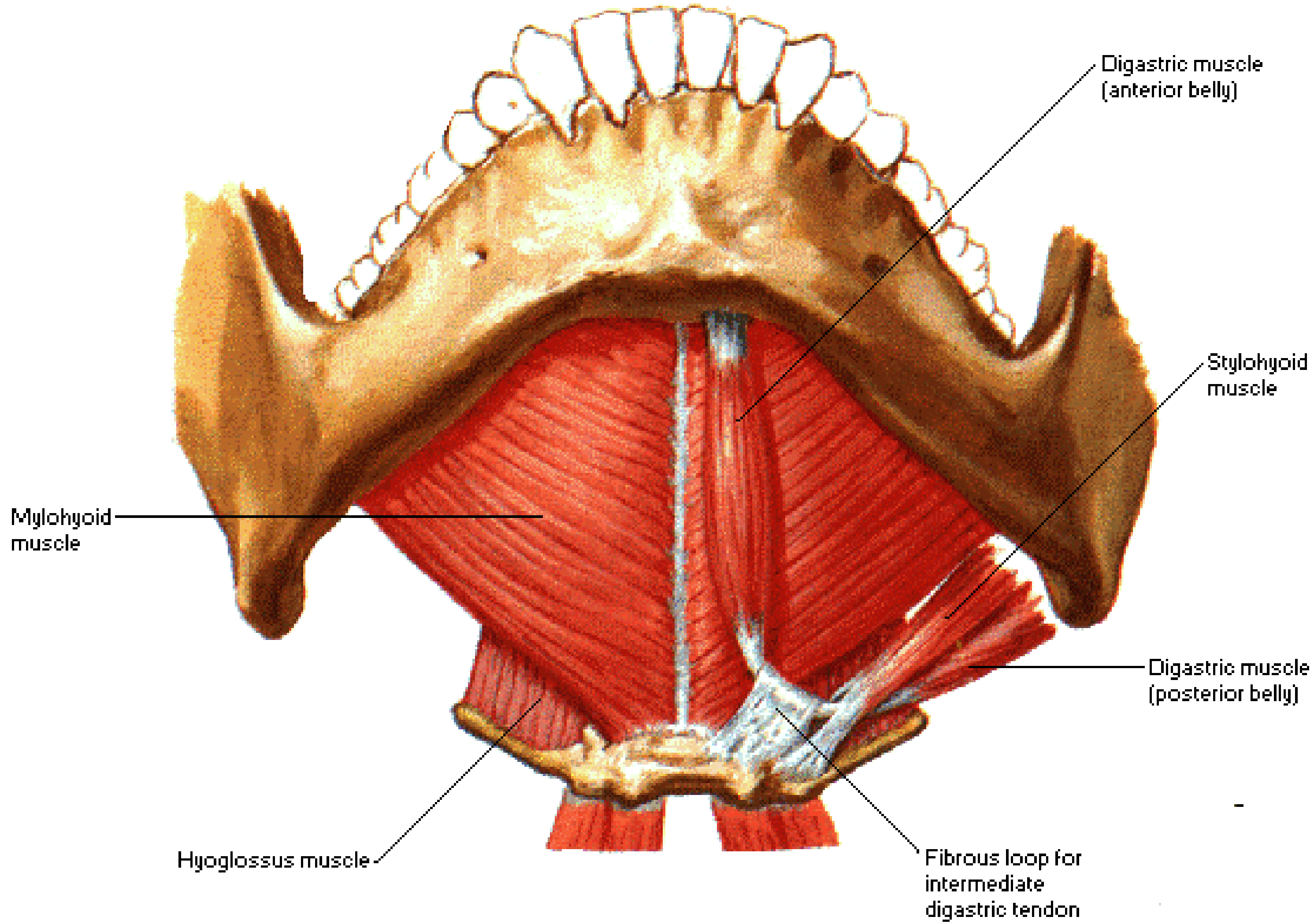
Posterior View



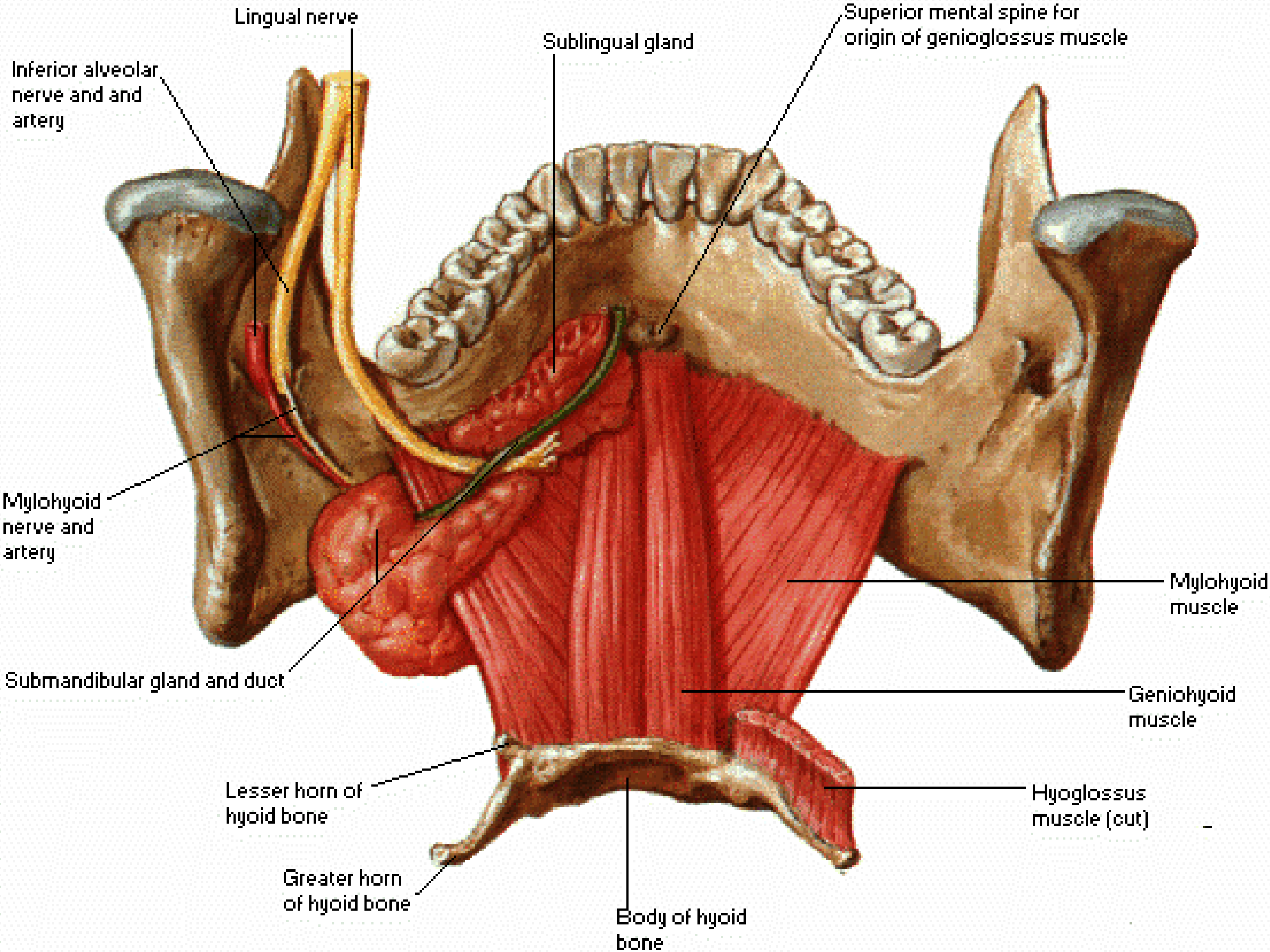
Lateral, Slightly Inferior View



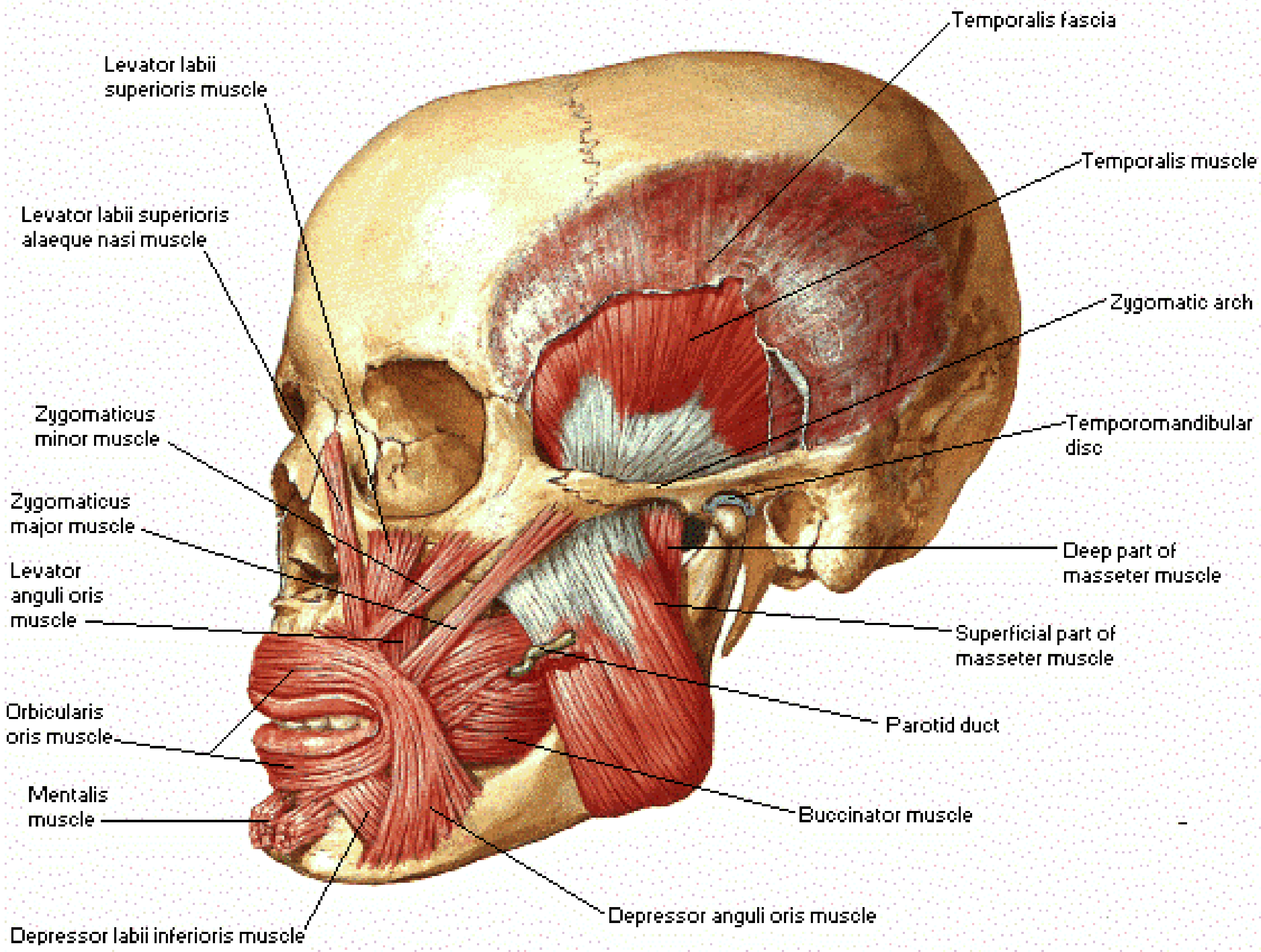
Anteroinferior View



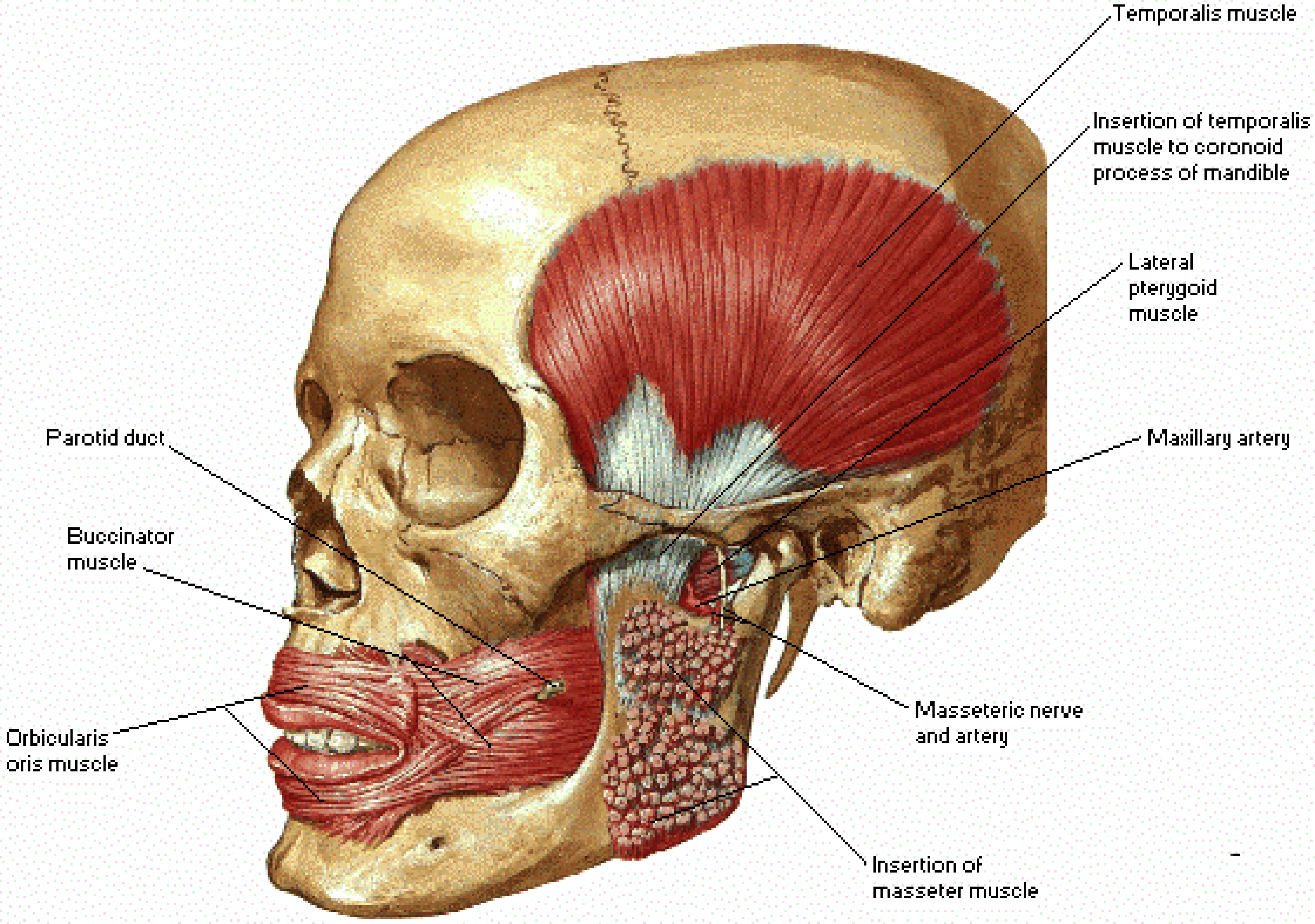
Posterosuperior View



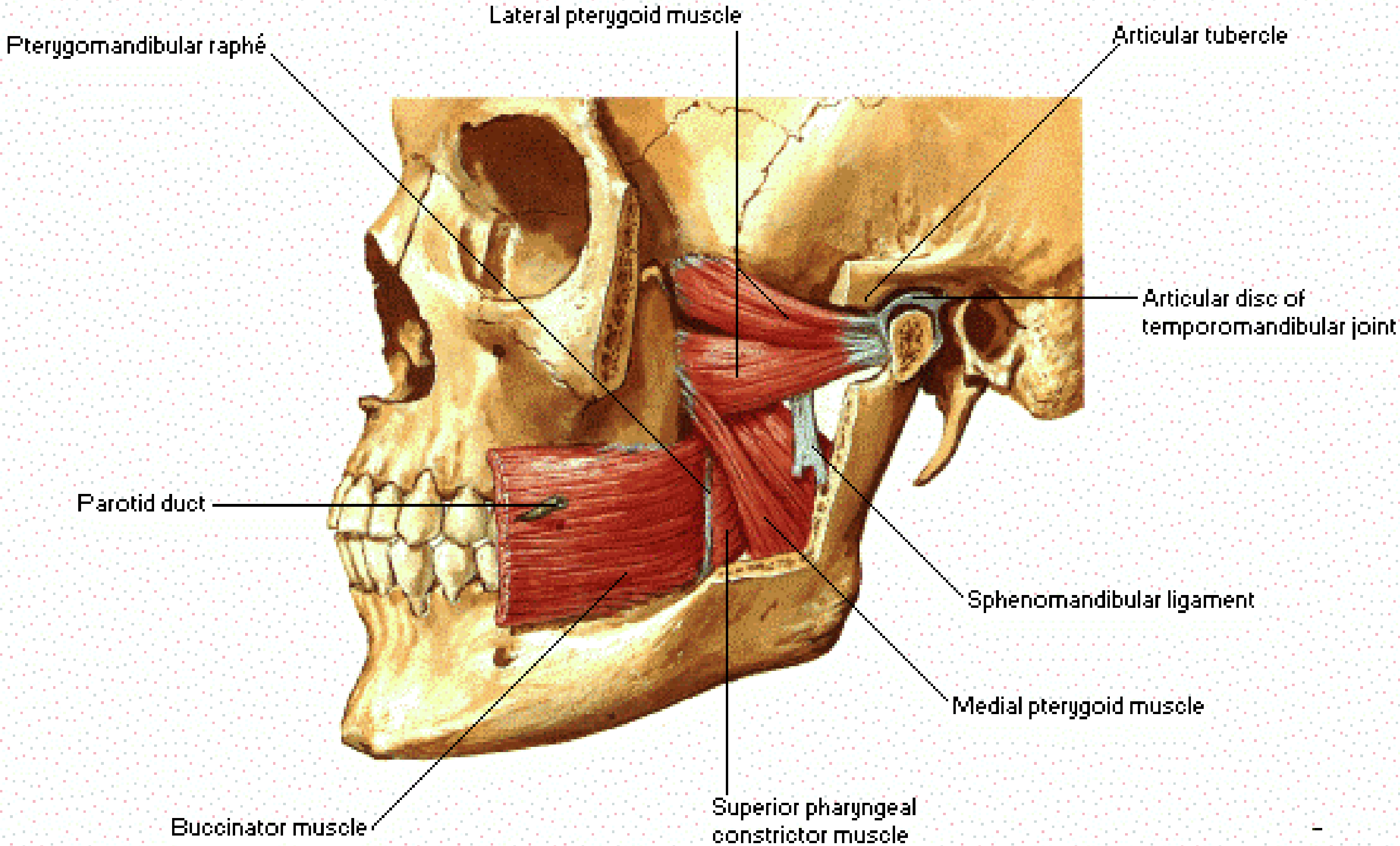
Lateral View



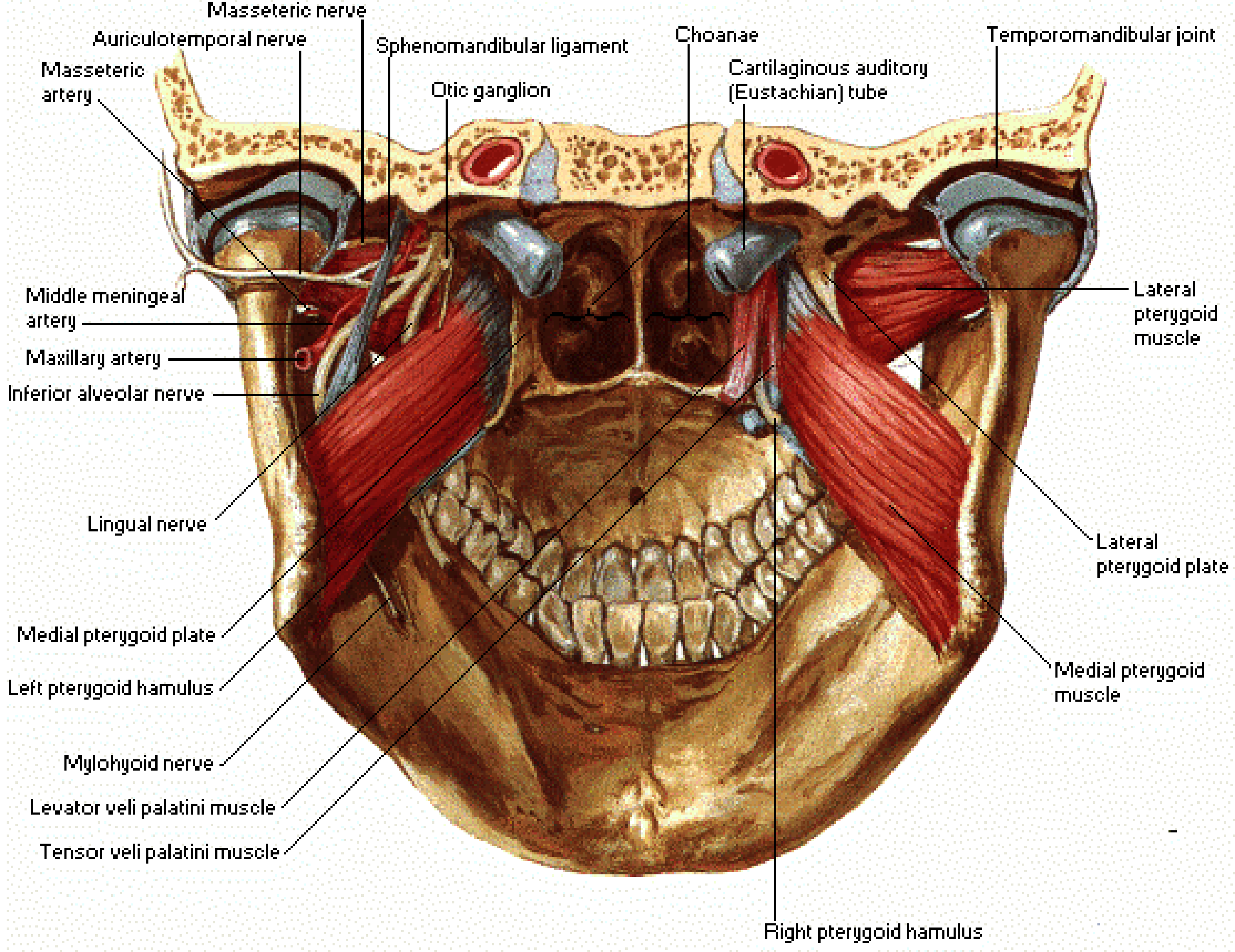
Lateral View

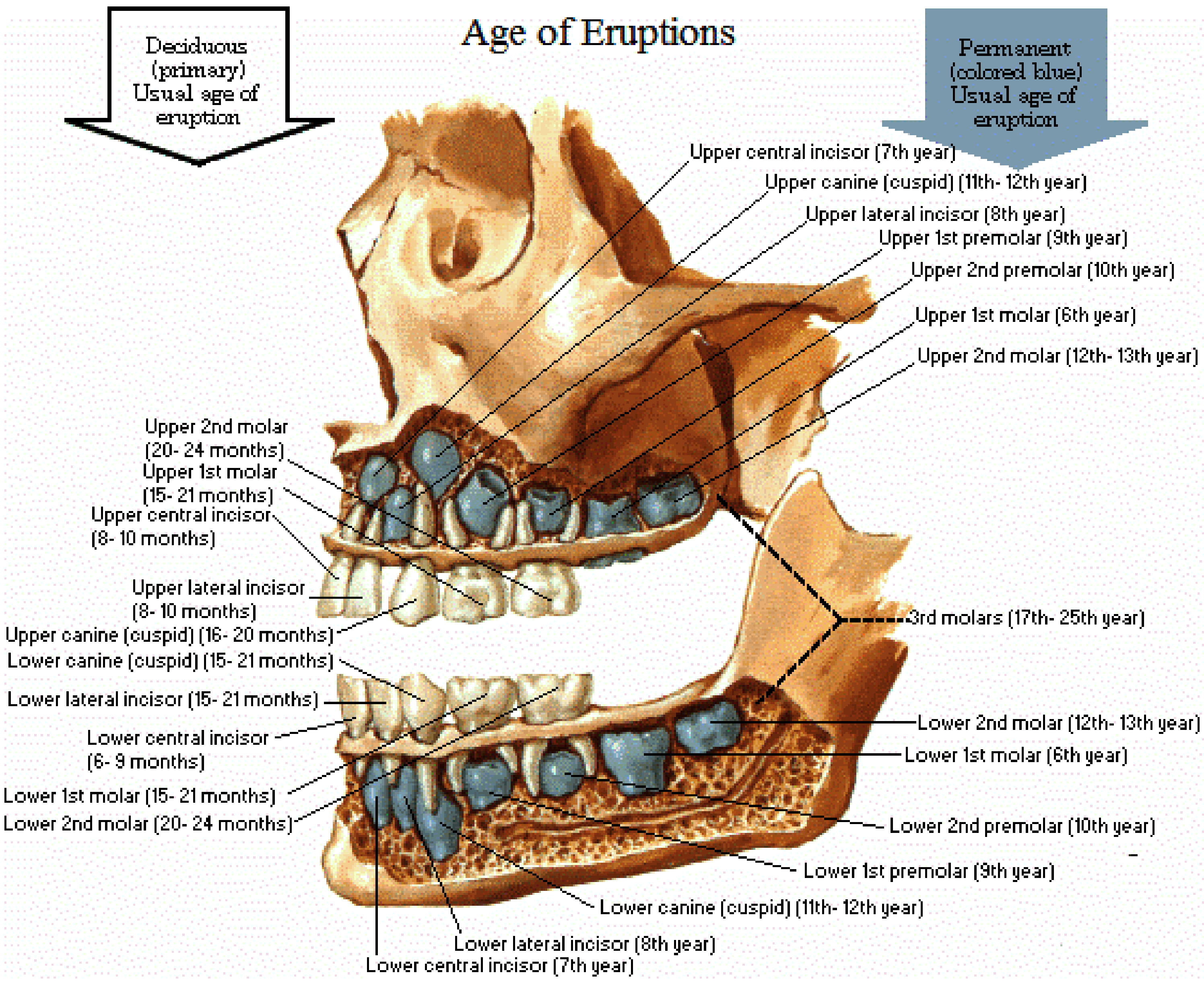


Lateral View

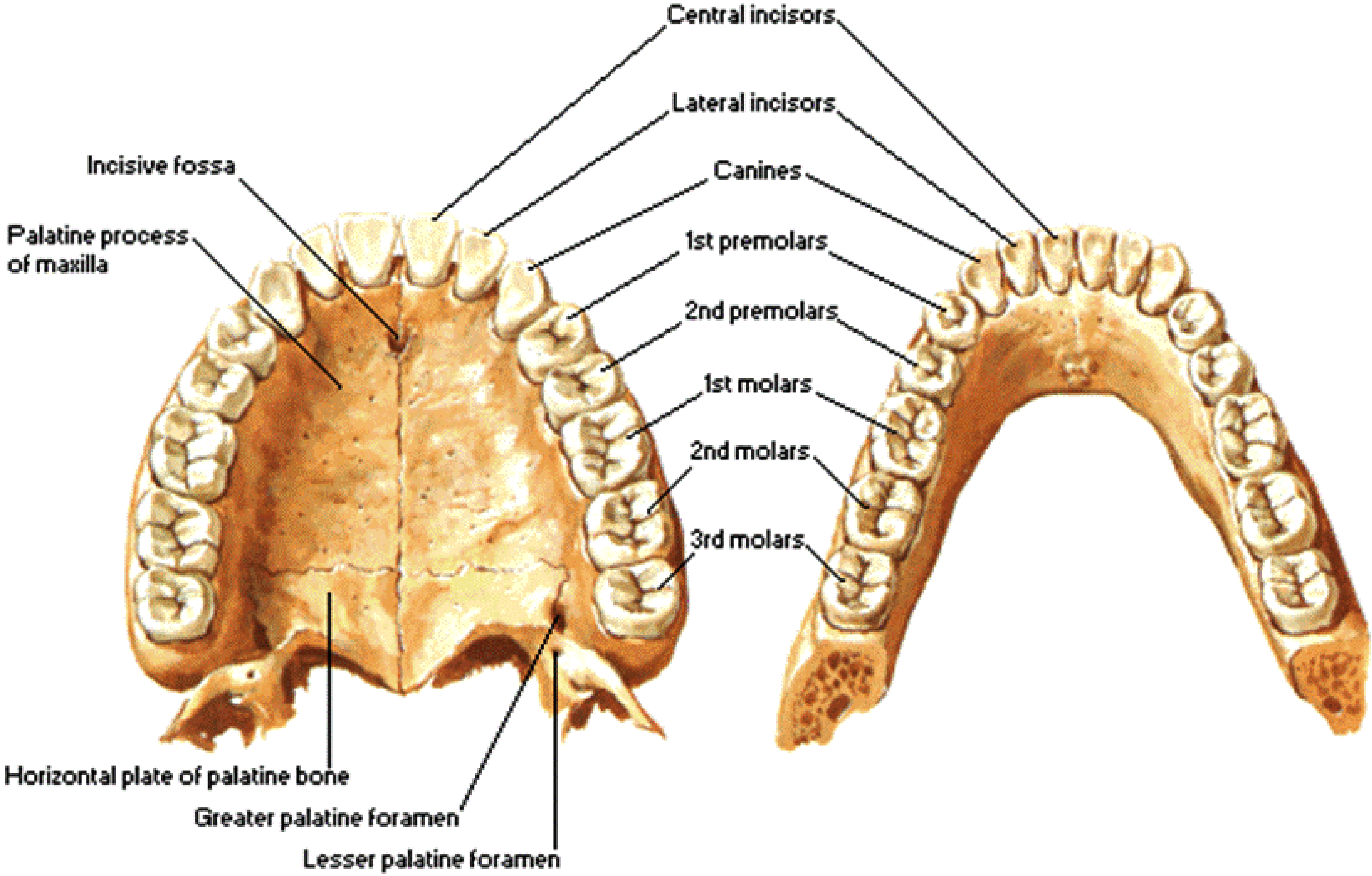


Posterior View



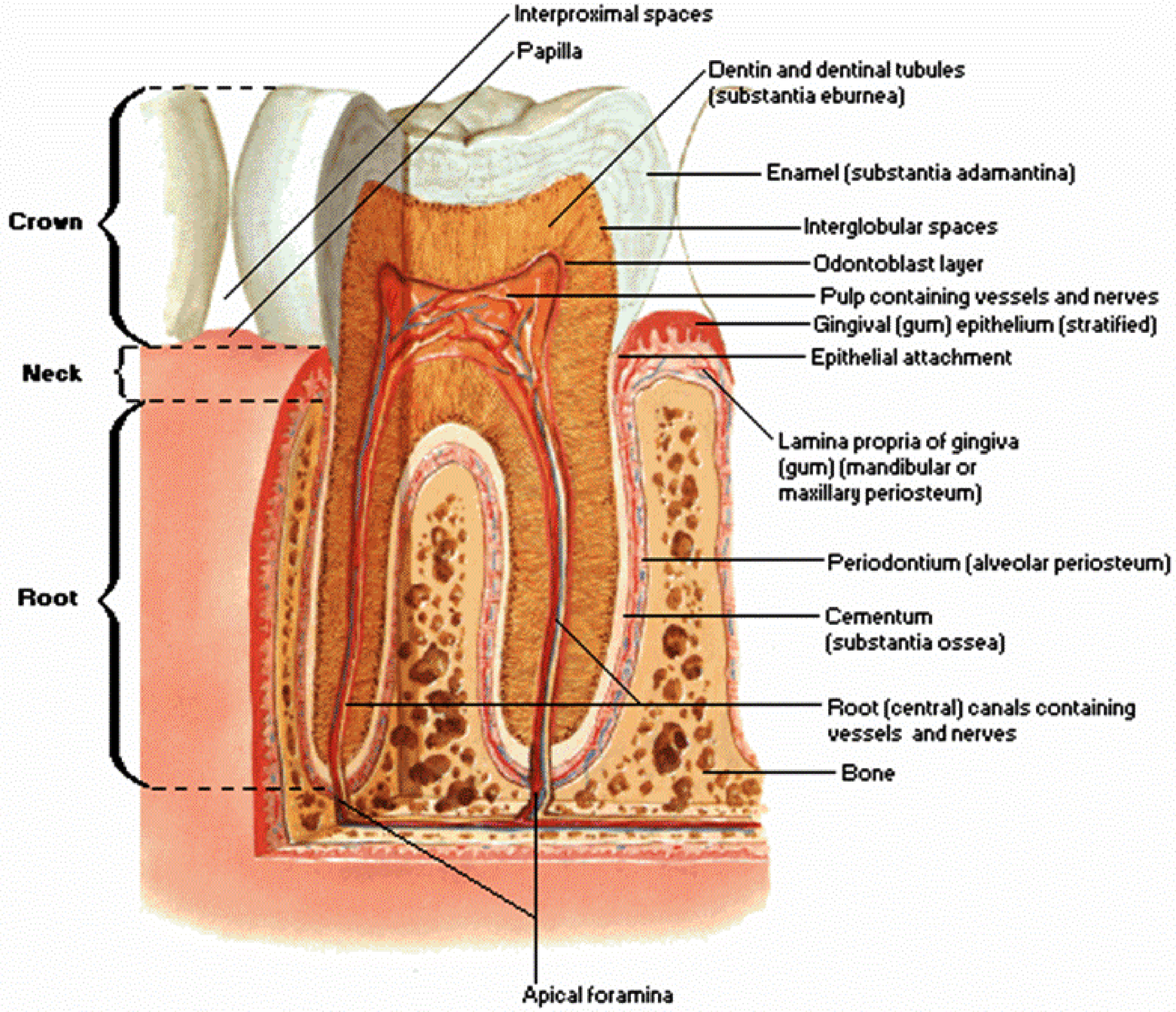


Age of Eruptions
Deciduous (primary) Usual age of eruption
Permanent (colored blue) Usual age of eruption
Upper central incisor (7th year)
Upper canine (cuspid) (11th- 12th year)
Upper lateral incisor (8th year)
Upper 1st premolar (9th year)
Upper 2nd premolar (10th year)
Upper 1st molar (6th year)
Upper 2nd molar (12th- 13th year)
Upper 2nd molar (20- 24 months)
Upper 1st molar (15- 21 months)
Upper central incisor (8- 10 months)
Upper lateral incisor (8- 10 months)
Upper canine (cuspid) (16- 20 months)
Lower canine (cuspid) (15- 21 months)
Lower lateral incisor (15- 21 months)
Lower central incisor (6- 9 months)
Lower 1st molar (15- 21 months)
Lower 2nd molar (20- 24 months)
3rd molars (17th- 25th year)
Lower 2nd molar (12th- 13th year)
Lower 1st molar (6th year)
Lower 2nd premolar (10th year)
Lower 1st premolar (9th year)
Lower canine (cuspid) (11th- 12th year)
Lower lateral incisor (8th year)
Lower central incisor (7th year)

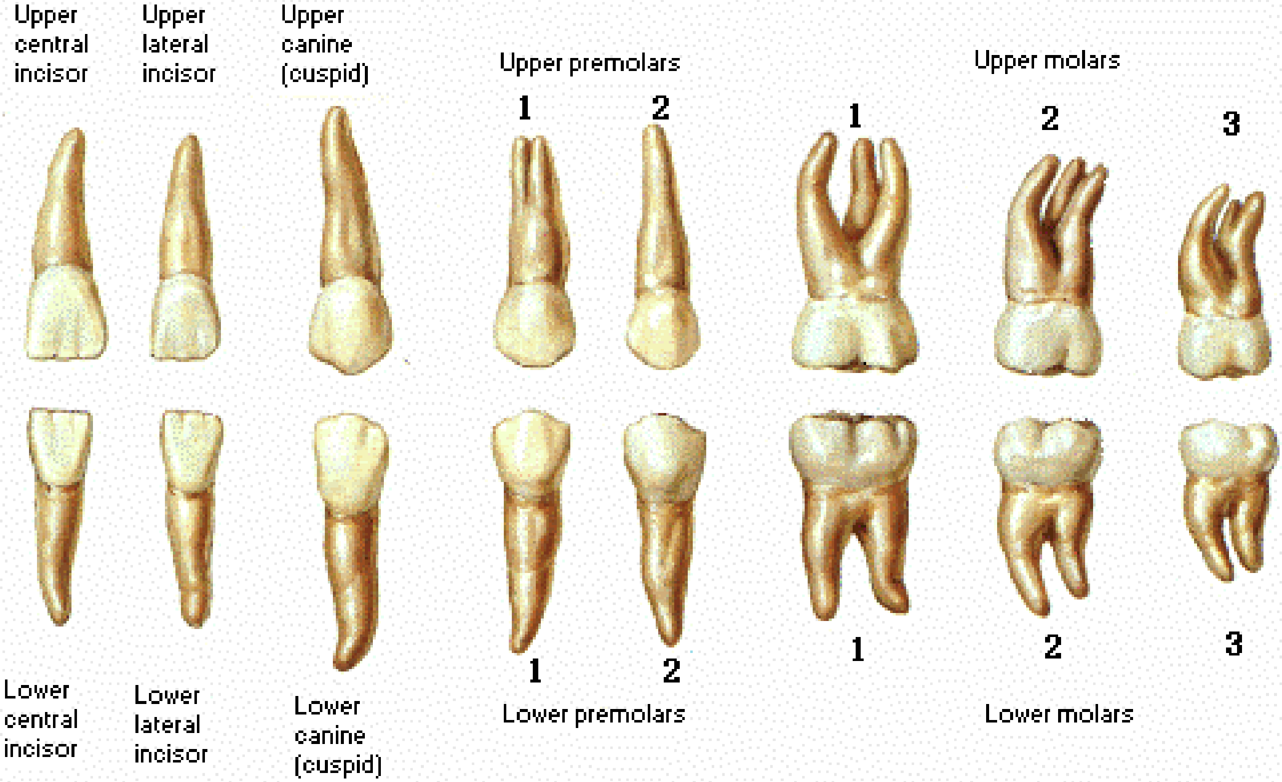


Upper permanent teeth

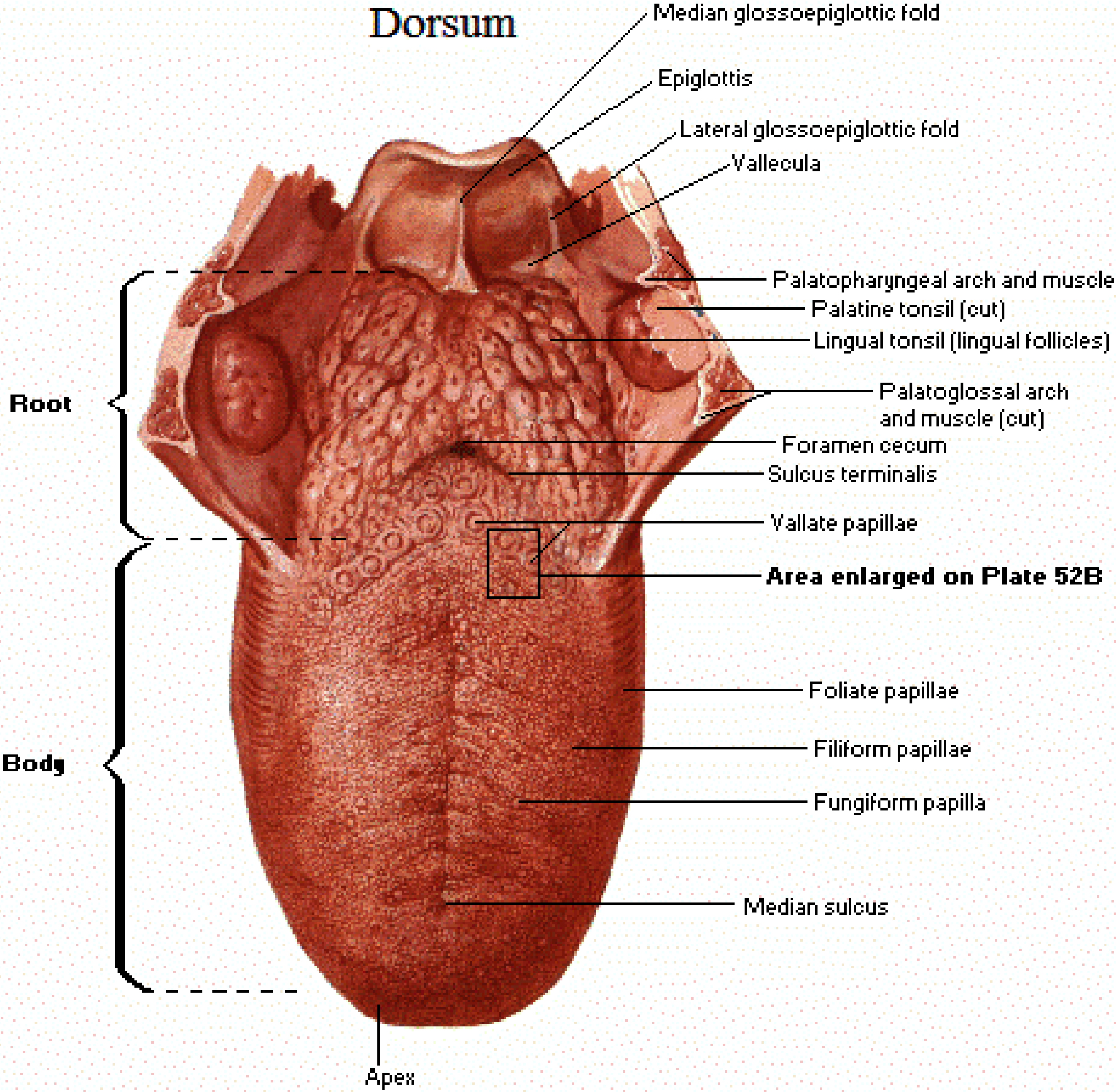
Lower permanent teeth


Interproximal spaces
Papilla
Dentin and dentinal tubules
(substantia eburnea)
Enamel (substantia adamantina)
Crown
Interglobular spaces
Odontoblast layer
Pulp containing vessels and nerves
Gingival (gum) epithelium (stratified)
Neck
Epithelial attachment
Lamina propria of gingiva
(gum) (mandibular or
maxillary periosteum)
Periodontium (alveolar periosteum)
Root
Cementum
(substantia ossea)
Root (central) canals containing
vessels and nerves
Bone
Apical foramina

Labiobuccal View

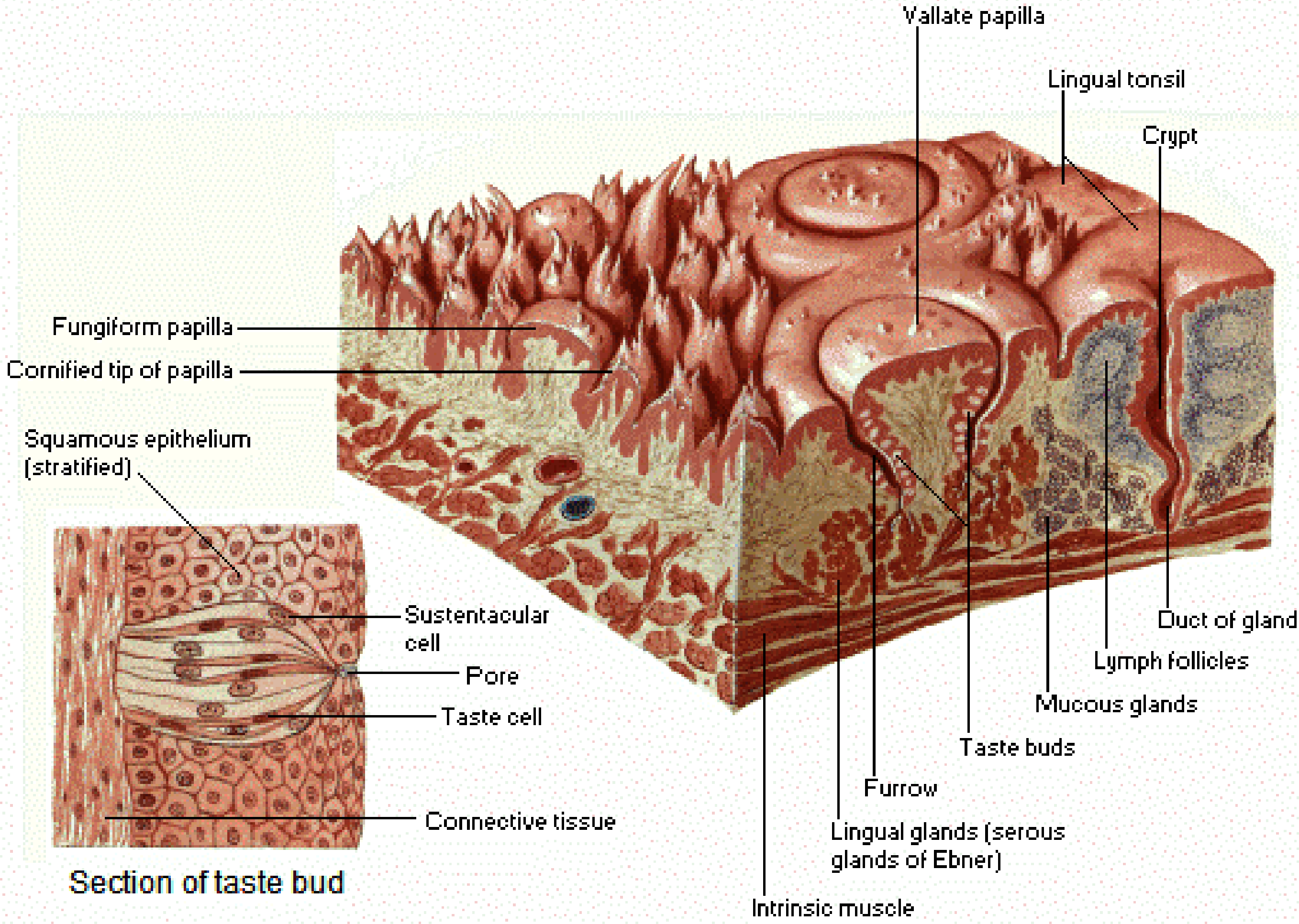


Dorsum

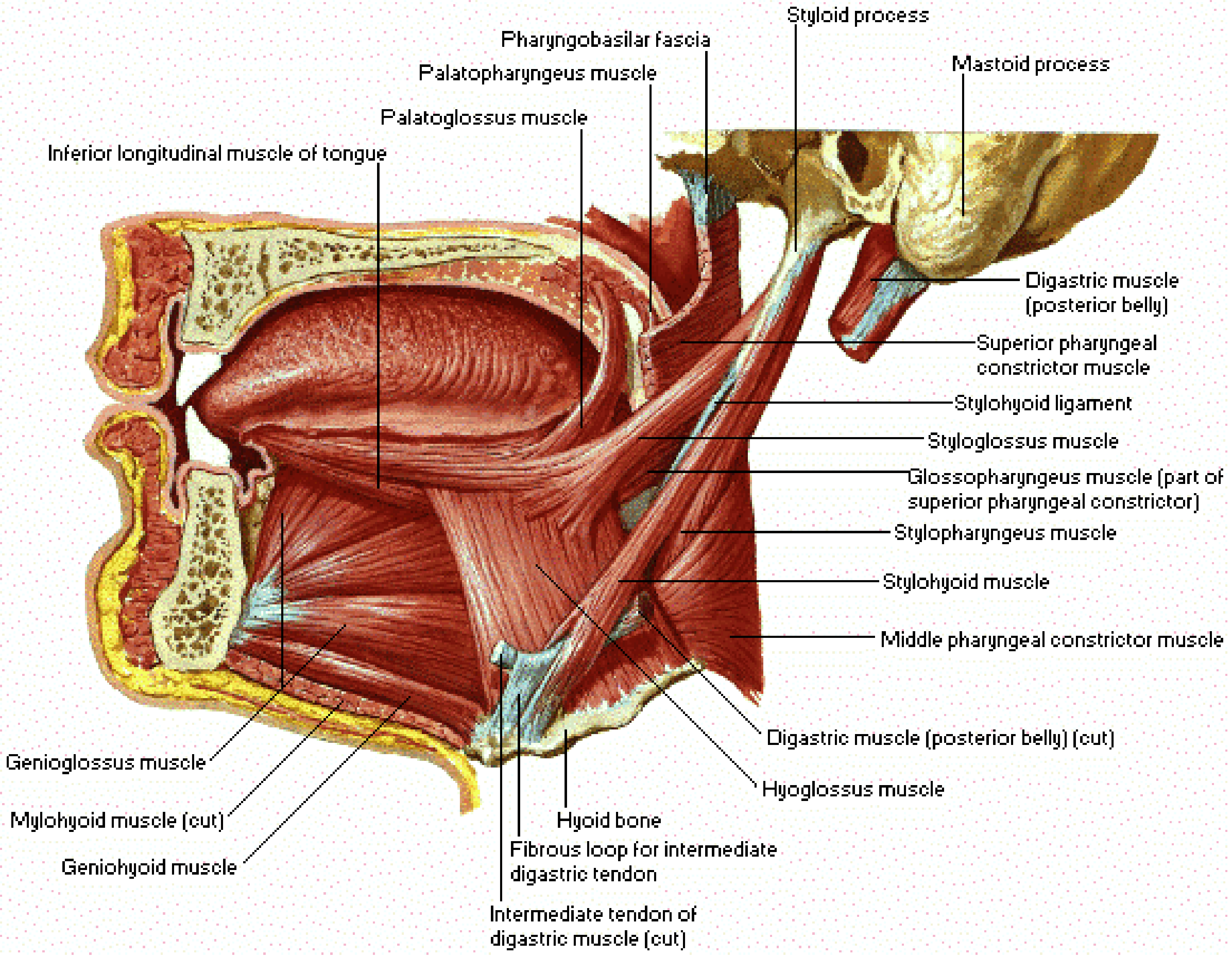


Median glossoepiglottic fold
Epiglottis
Lateral glossoepiglottic fold
Vallecula
Palatopharyngeal arch and muscle
Palatine tonsil (cut)
Lingual tonsil (lingual follicles)
Palatoglossal arch and muscle (cut)
Foramen cecum
Sulcus terminalis
Vallate papillae
Area enlarged on Plate 52B
Root
Body
Foliate papillae
Filiform papillae
Fungiform papilla
Median sulcus
Apex

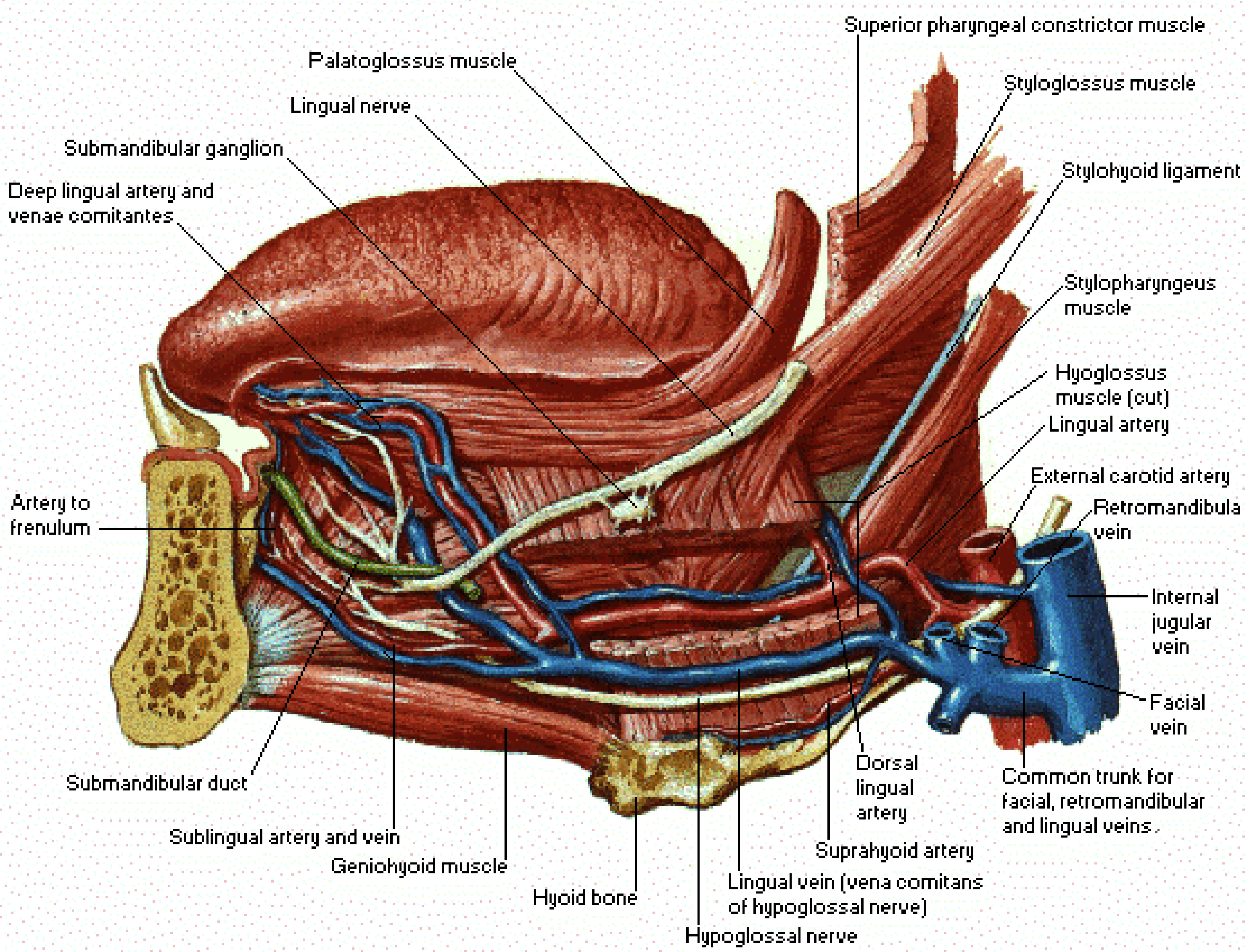
Area Indicated on Plate 52A



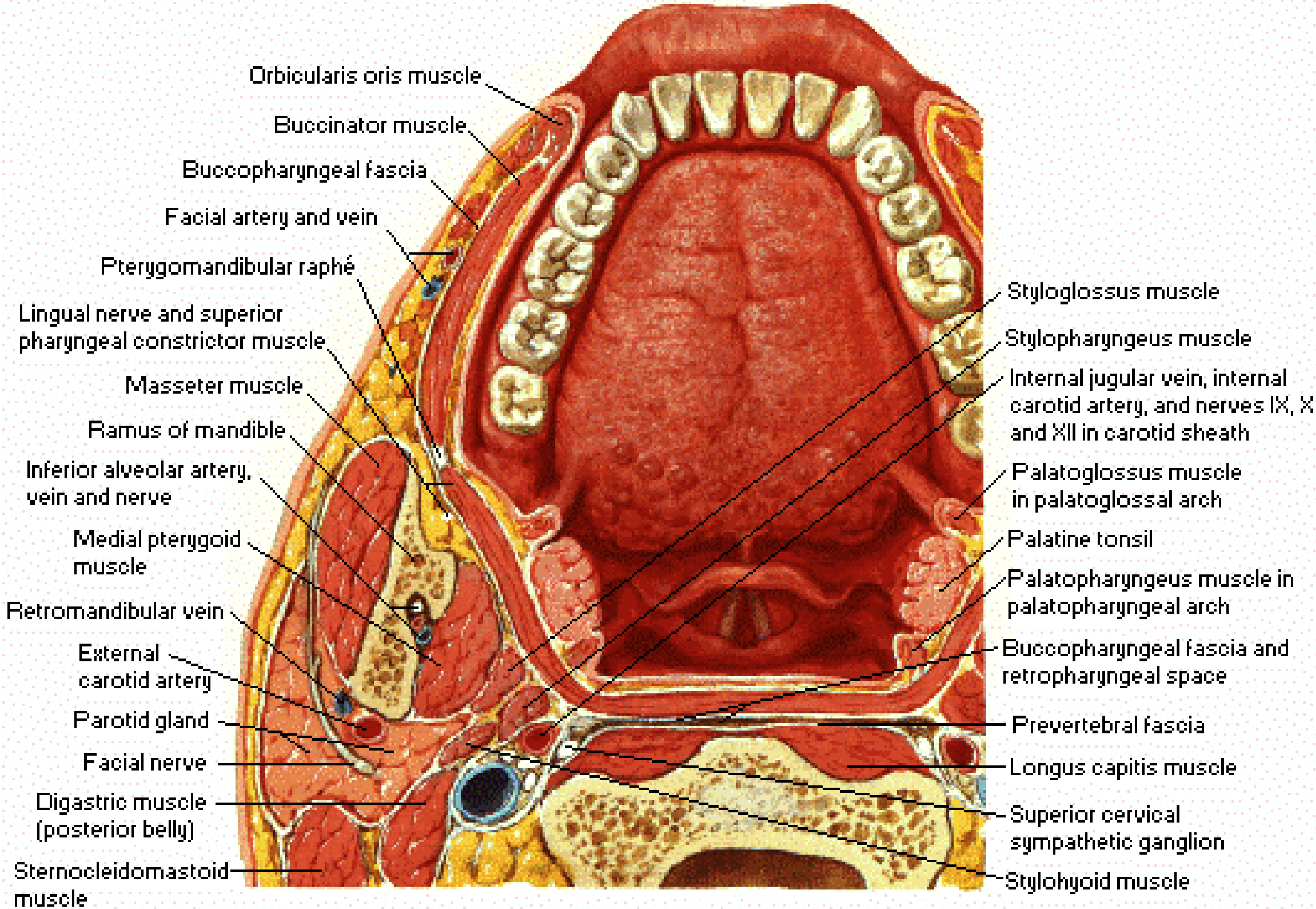
Sagittal Section



Sagittal Section

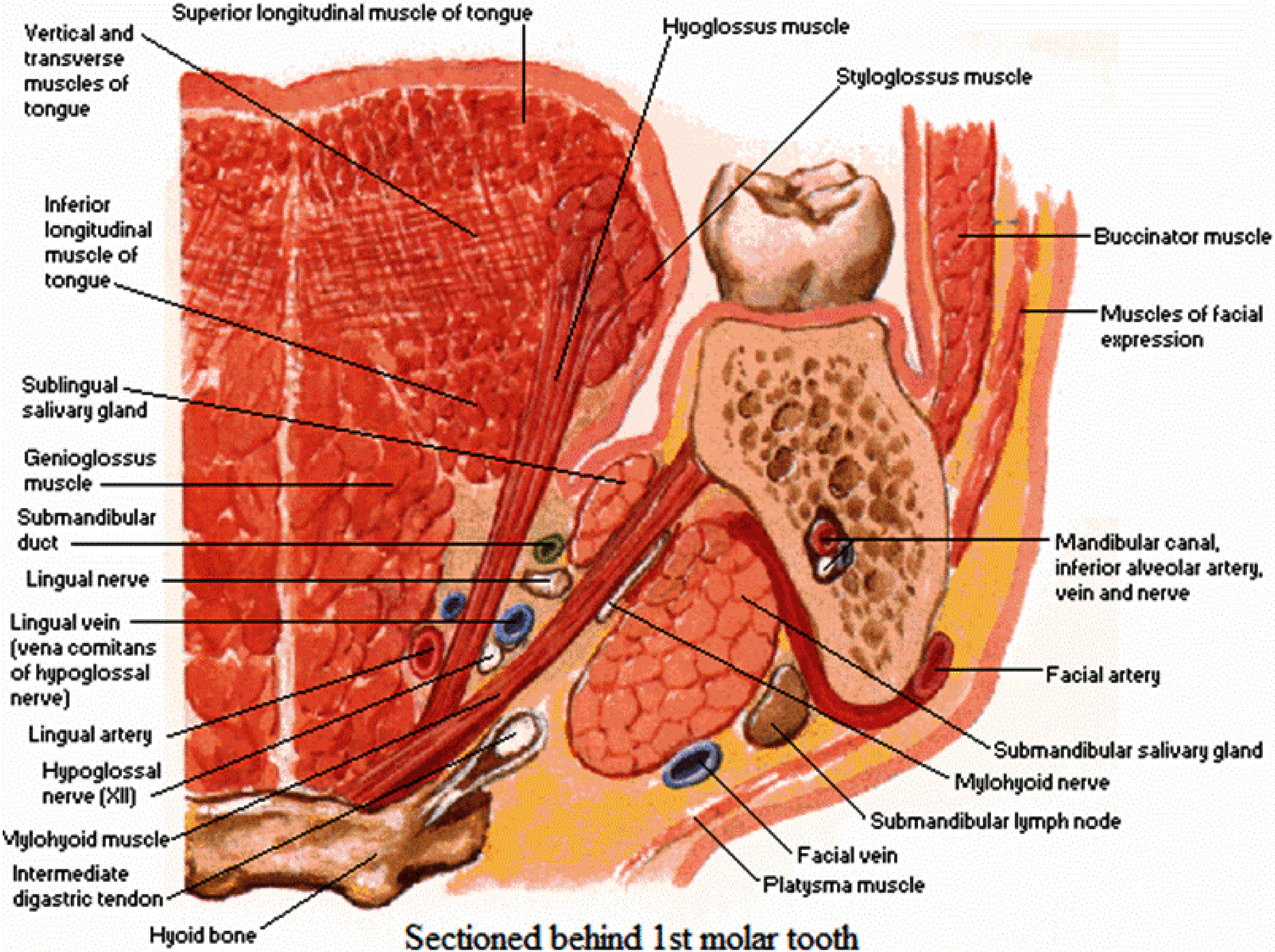


Horizontal Section - Superior View



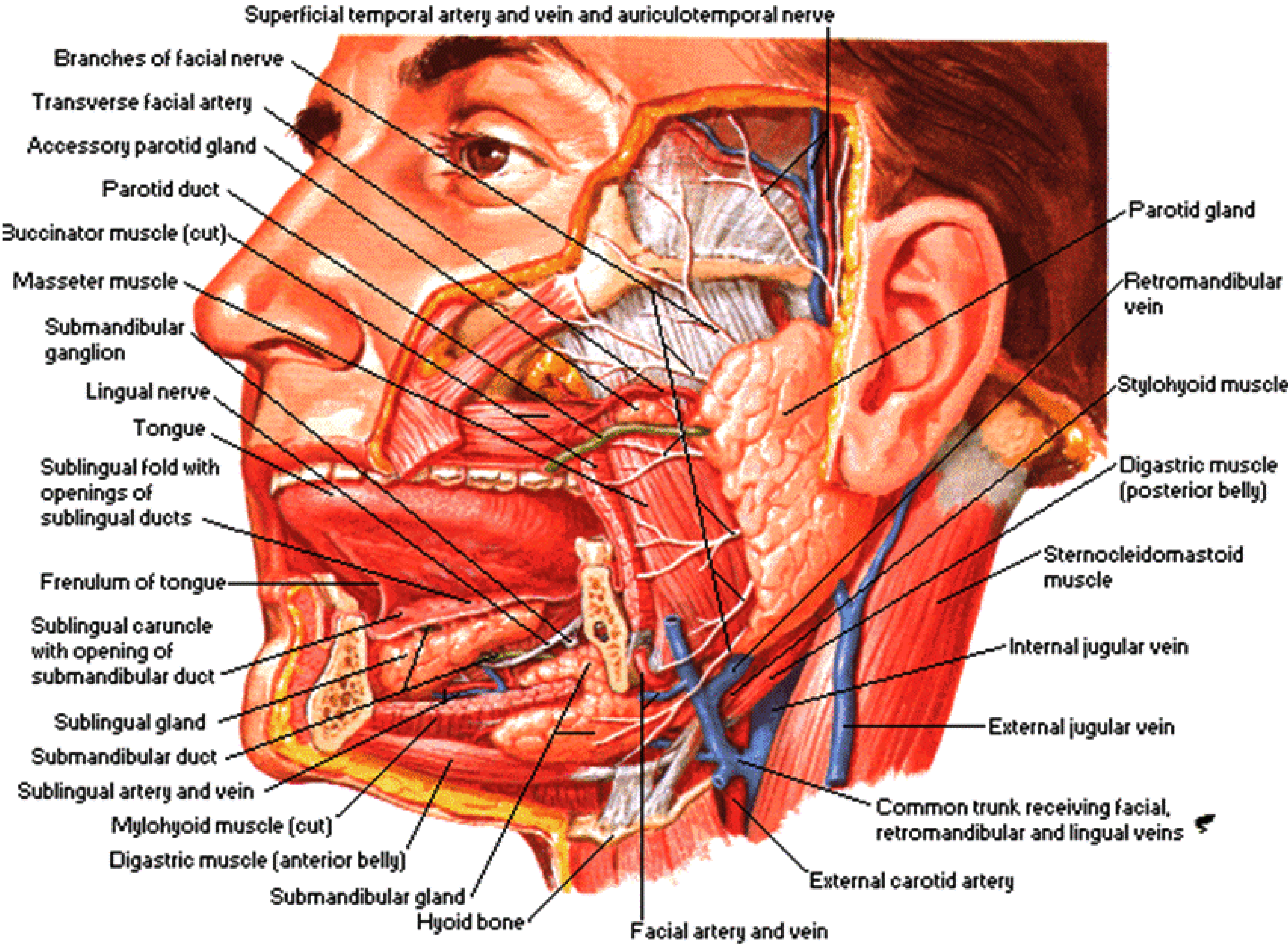
Sectioned below lingula of mandible

Frontal Section - Anterior View



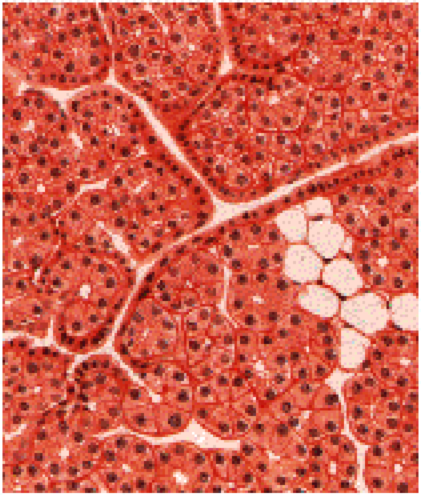
Sectioned behind 1st molar tooth

Dissection

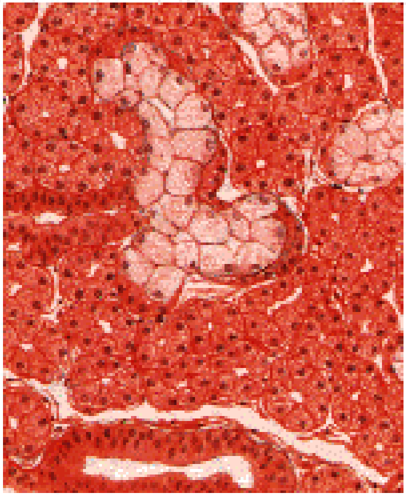


Superficial temporal artery and vein and auriculotemporal nerve
Branches of facial nerve
Transverse facial artery
Accessory parotid gland
Parotid duct
Buccinator muscle (cut)
Masseter muscle
Submandibular ganglion
Lingual nerve
Tongue
Sublingual fold with openings of sublingual ducts
Frenulum of tongue
Sublingual caruncle with opening of submandibular duct
Sublingual gland
Submandibular duct
Sublingual artery and vein
Mylohyoid muscle (cut)
Digastric muscle (anterior belly)
Submandibular gland
Hyoid bone
Facial artery and vein
Parotid gland
Retromandibular vein
Stylohyoid muscle
Digastric muscle (posterior belly)
Sternocleidomastoid muscle
Internal jugular vein
External jugular vein
Common trunk receiving facial, retromandibular and lingual veins
External carotid artery

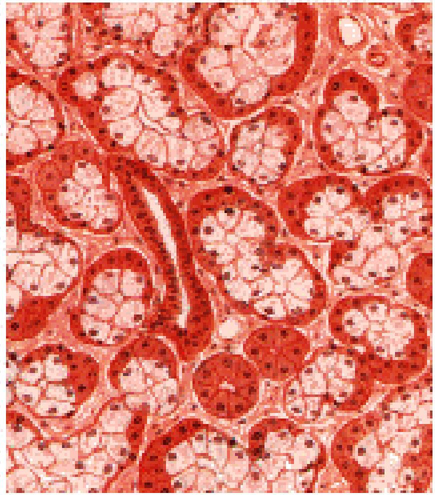
Histology



Parotid gland: totally serous

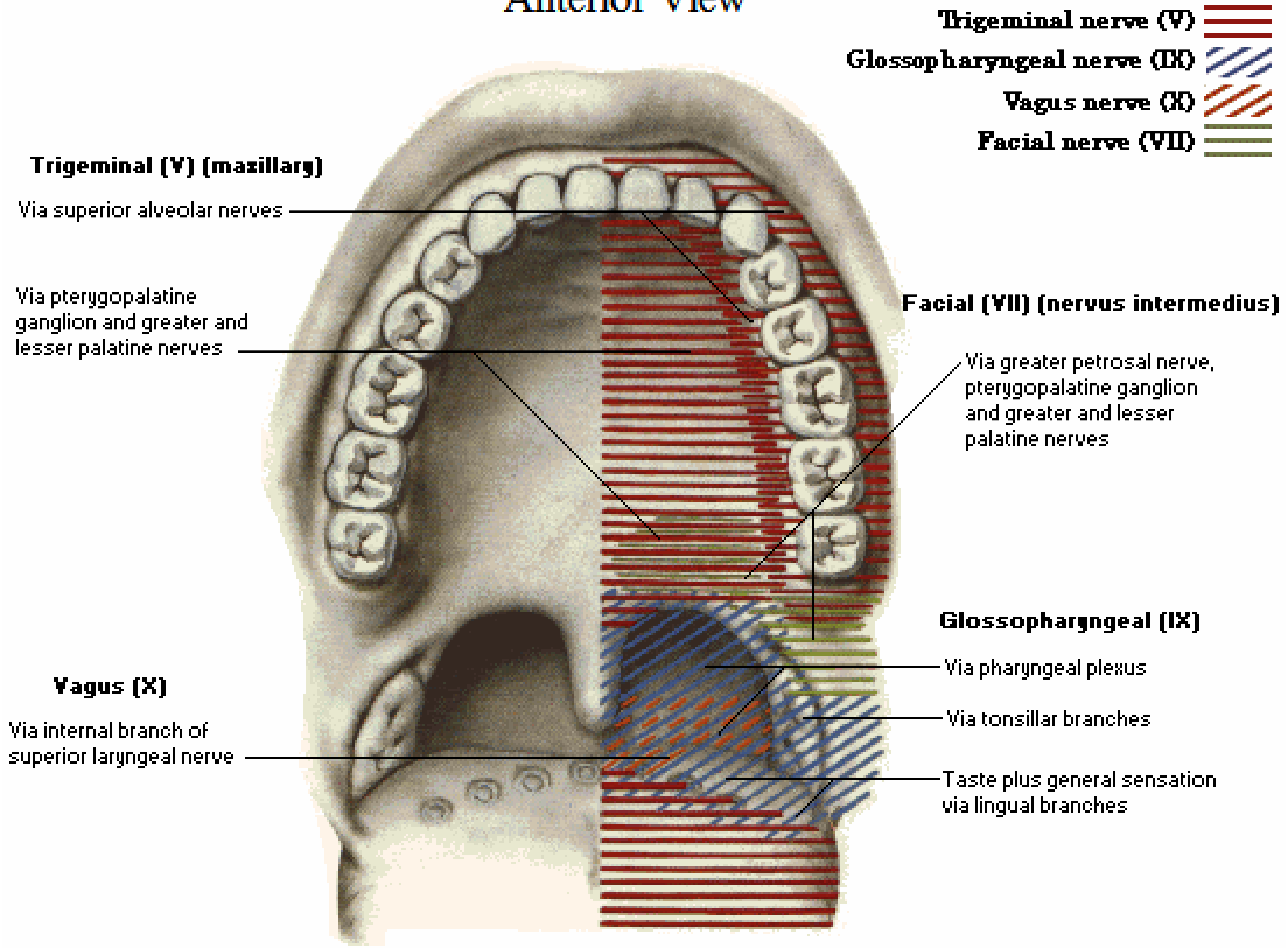


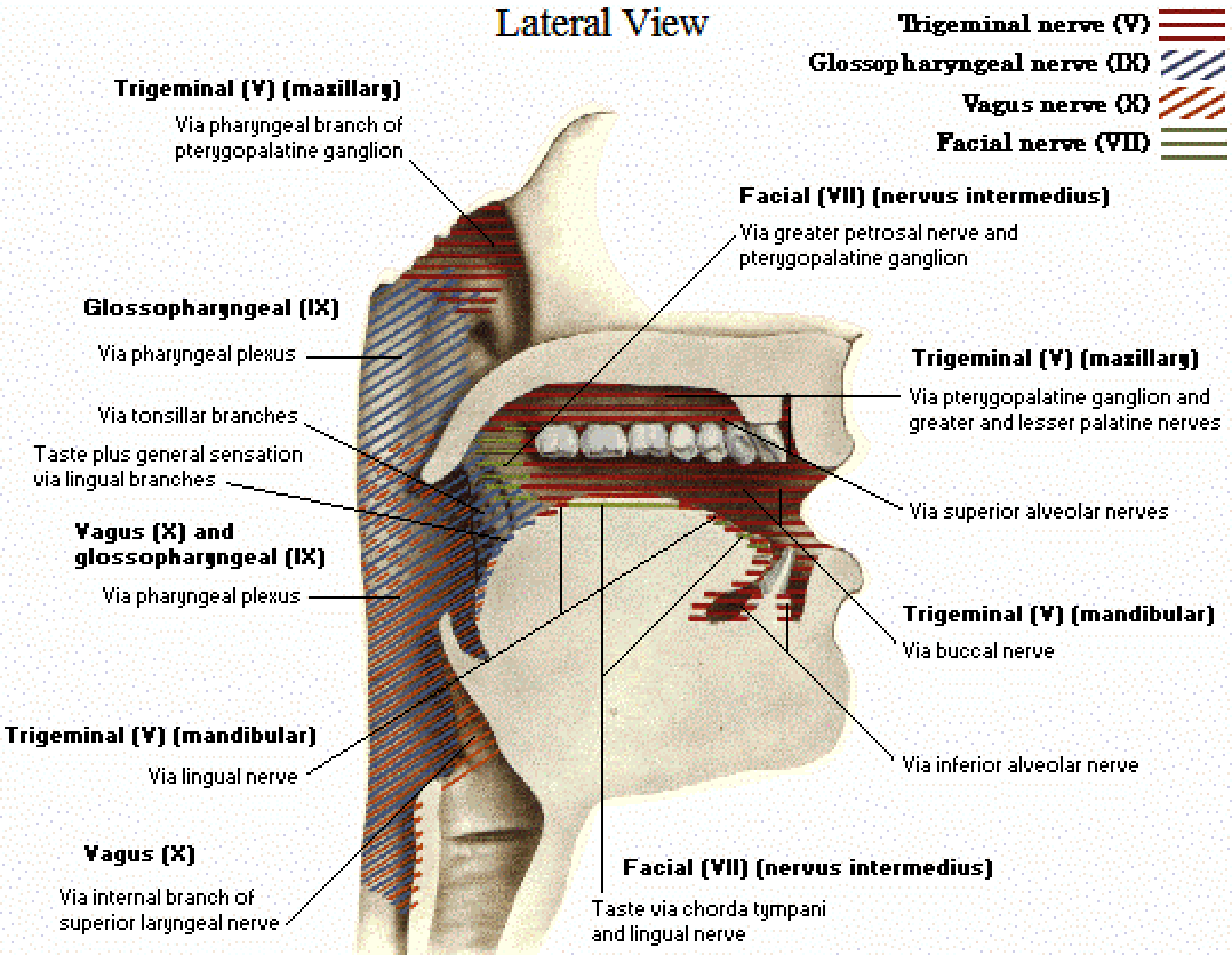
Submandibular gland: mostly serous, partially mucous



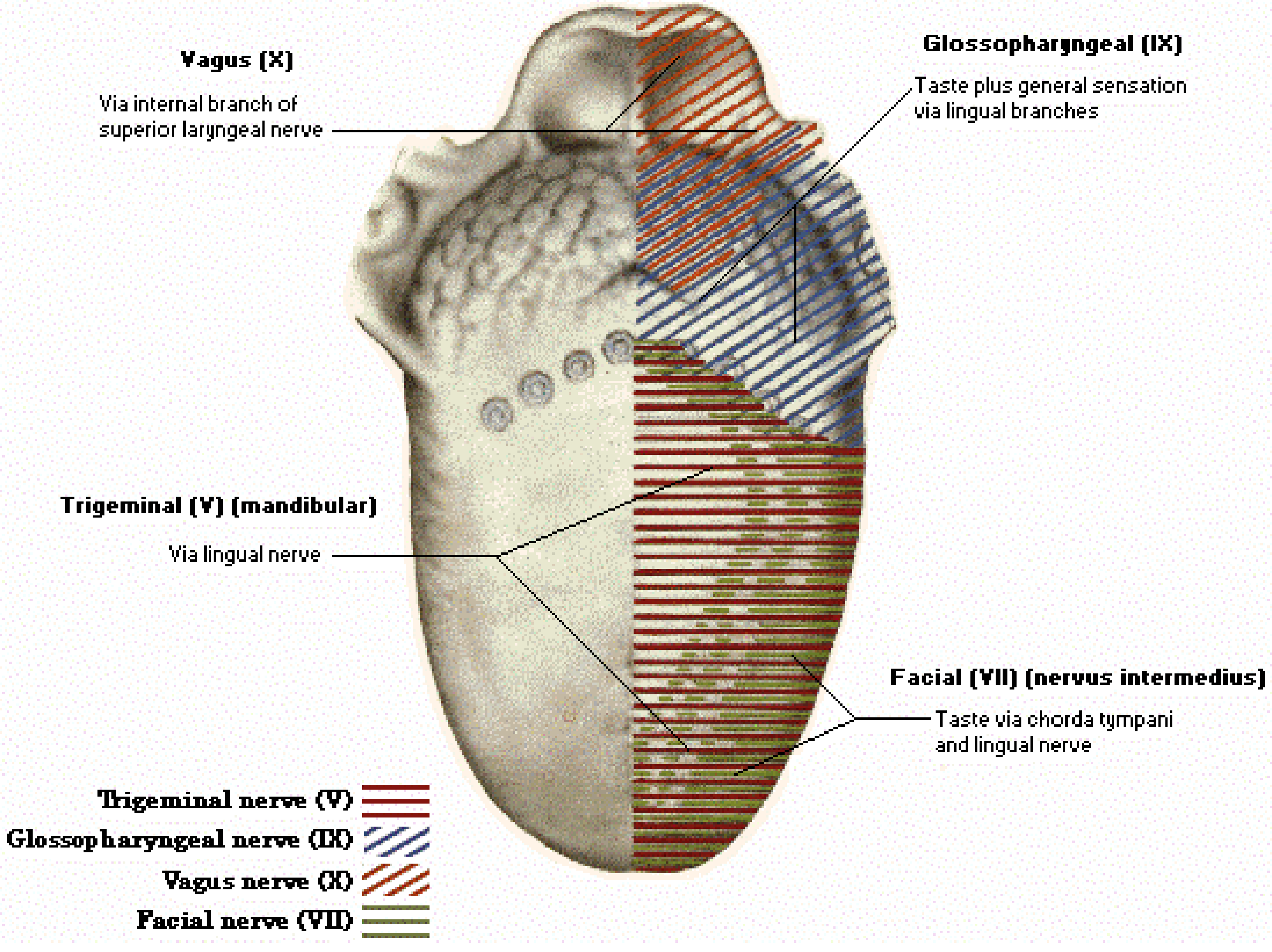
Sublingual gland: almost completely mucous

Anterior View

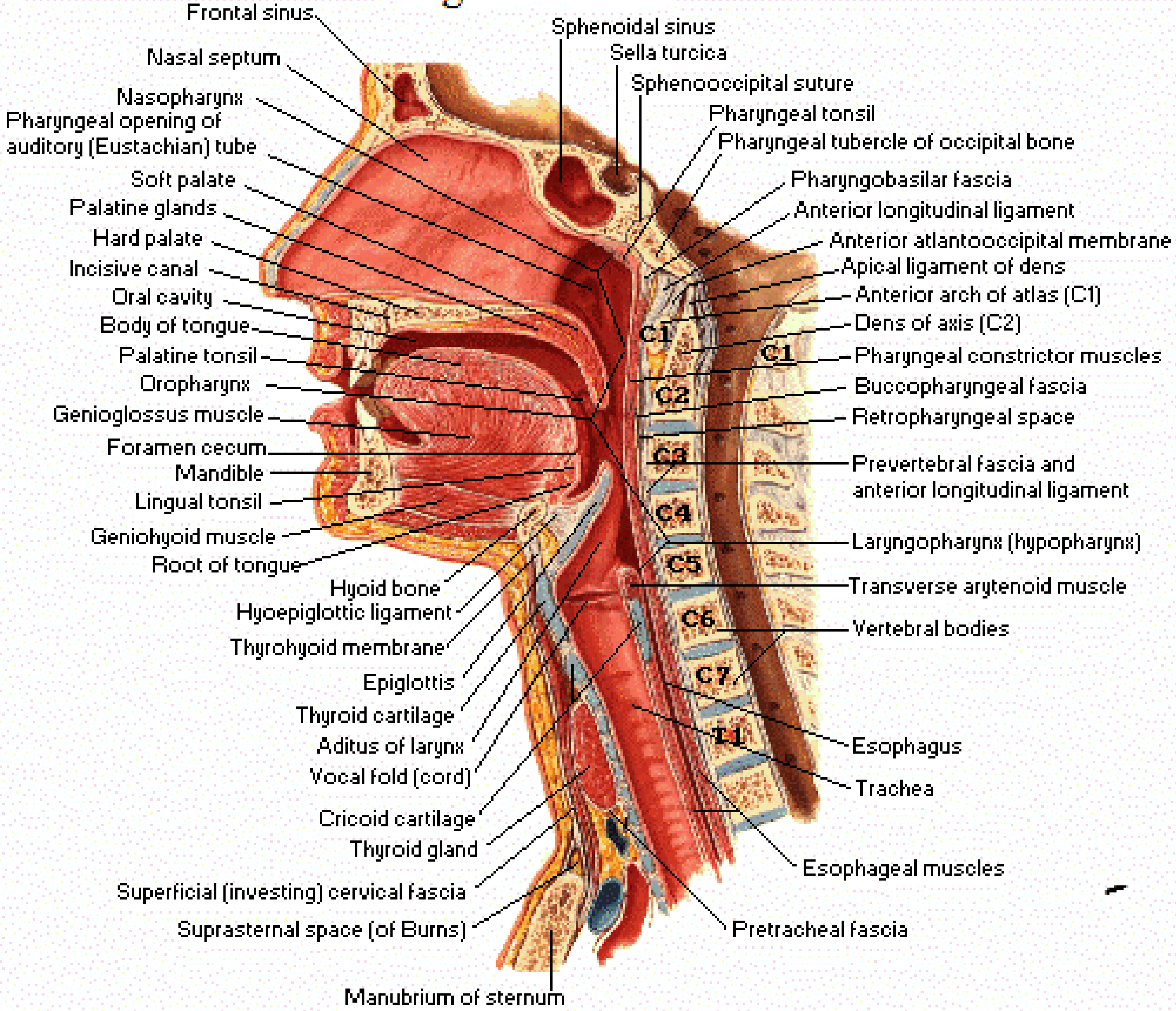



Lateral View
Trigeminal nerve (V)
Glossopharyngeal nerve (IX)
Vagus nerve (X)
Facial nerve (VII)
Trigeminal (V) (maxillary)
Via pharyngeal branch of pterygopalatine ganglion
Facial (VII) (nervus intermedius)
Via greater petrosal nerve and pterygopalatine ganglion
Glossopharyngeal (IX)
Via pharyngeal plexus
Via tonsillar branches
Taste plus general sensation via lingual branches
Trigeminal (V) (maxillary)
Via pterygopalatine ganglion and greater and lesser palatine nerves
Via superior alveolar nerves
Vagus (X) and glossopharyngeal (IX)
Via pharyngeal plexus
Trigeminal (V) (mandibular)
Via buccal nerve
Trigeminal (V) (mandibular)
Via lingual nerve
Via inferior alveolar nerve
Vagus (X)
Via internal branch of superior laryngeal nerve
Facial (VII) (nervus intermedius)
Taste via chorda tympani and lingual nerve

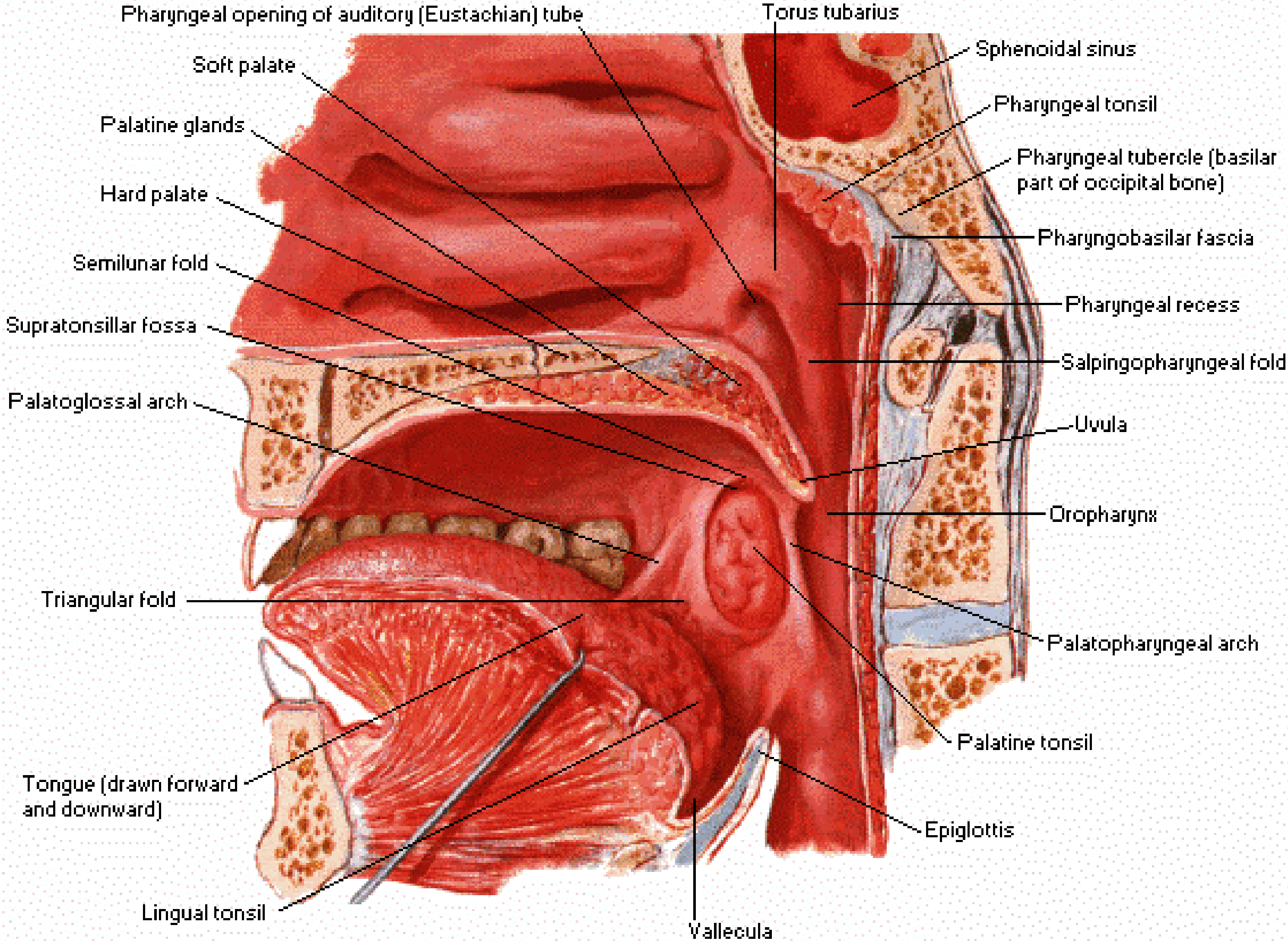
Dorsum of Tongue



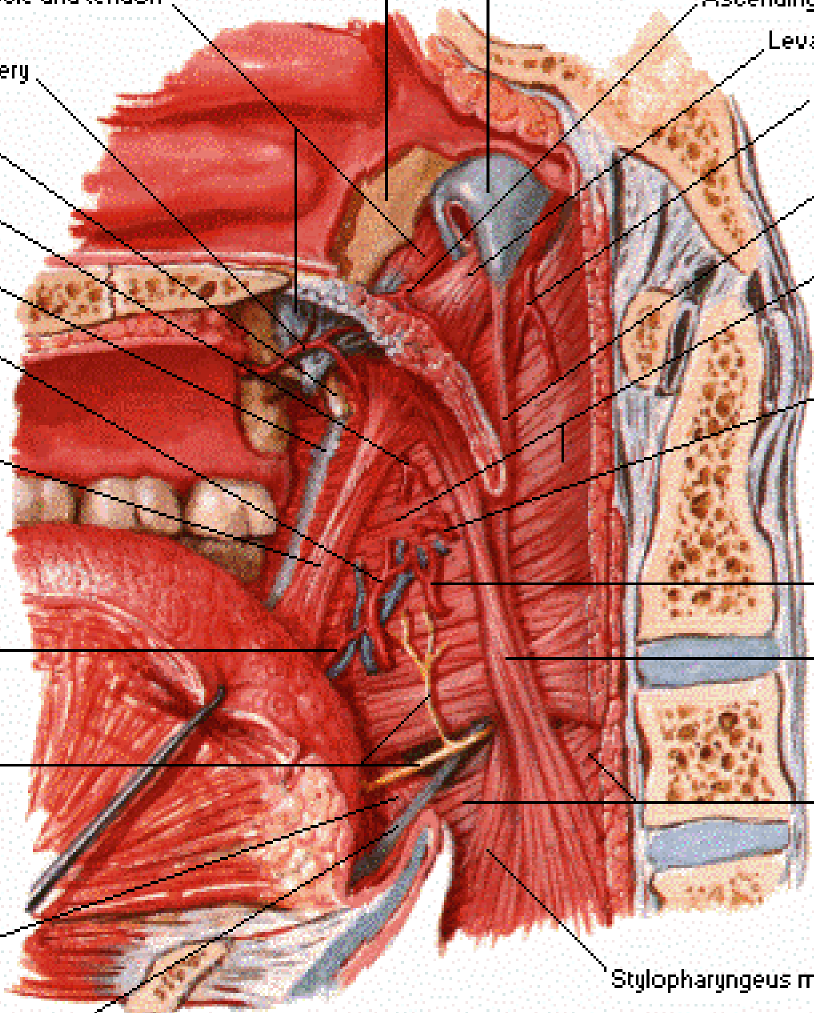
Sagittal Section



Medial Sagittal View

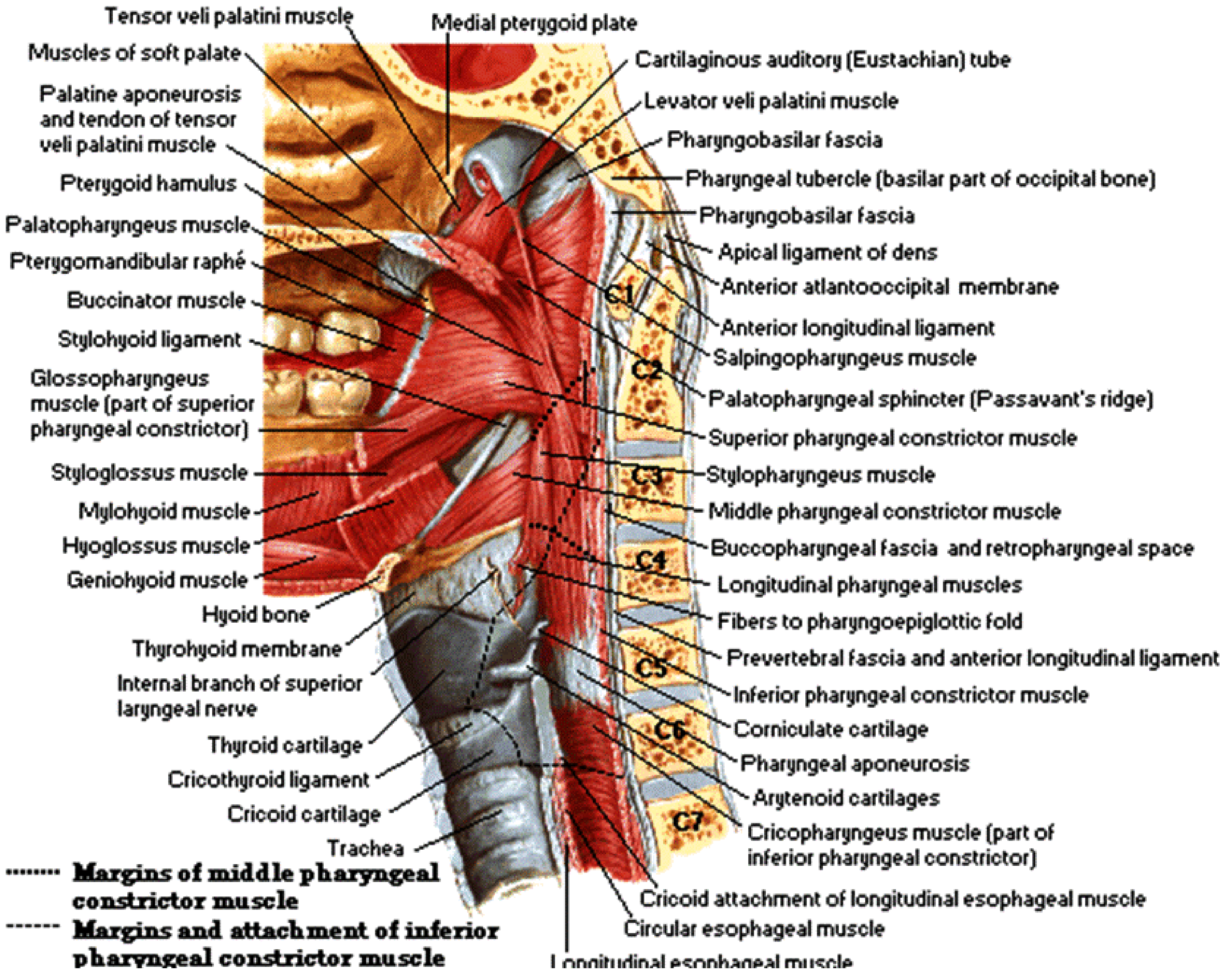


Pharyngeal Mucosa Removed

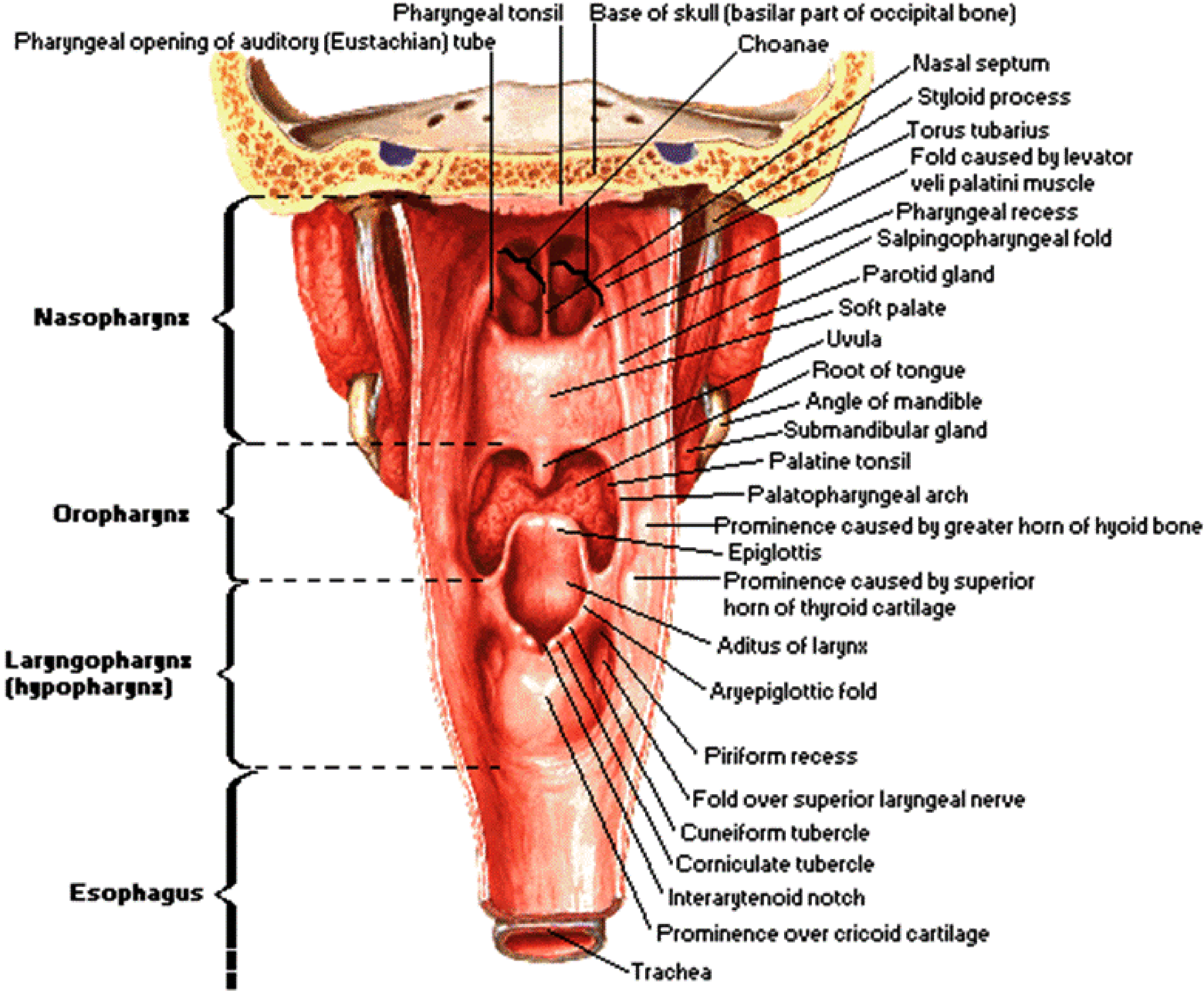


Medial Sagittal View

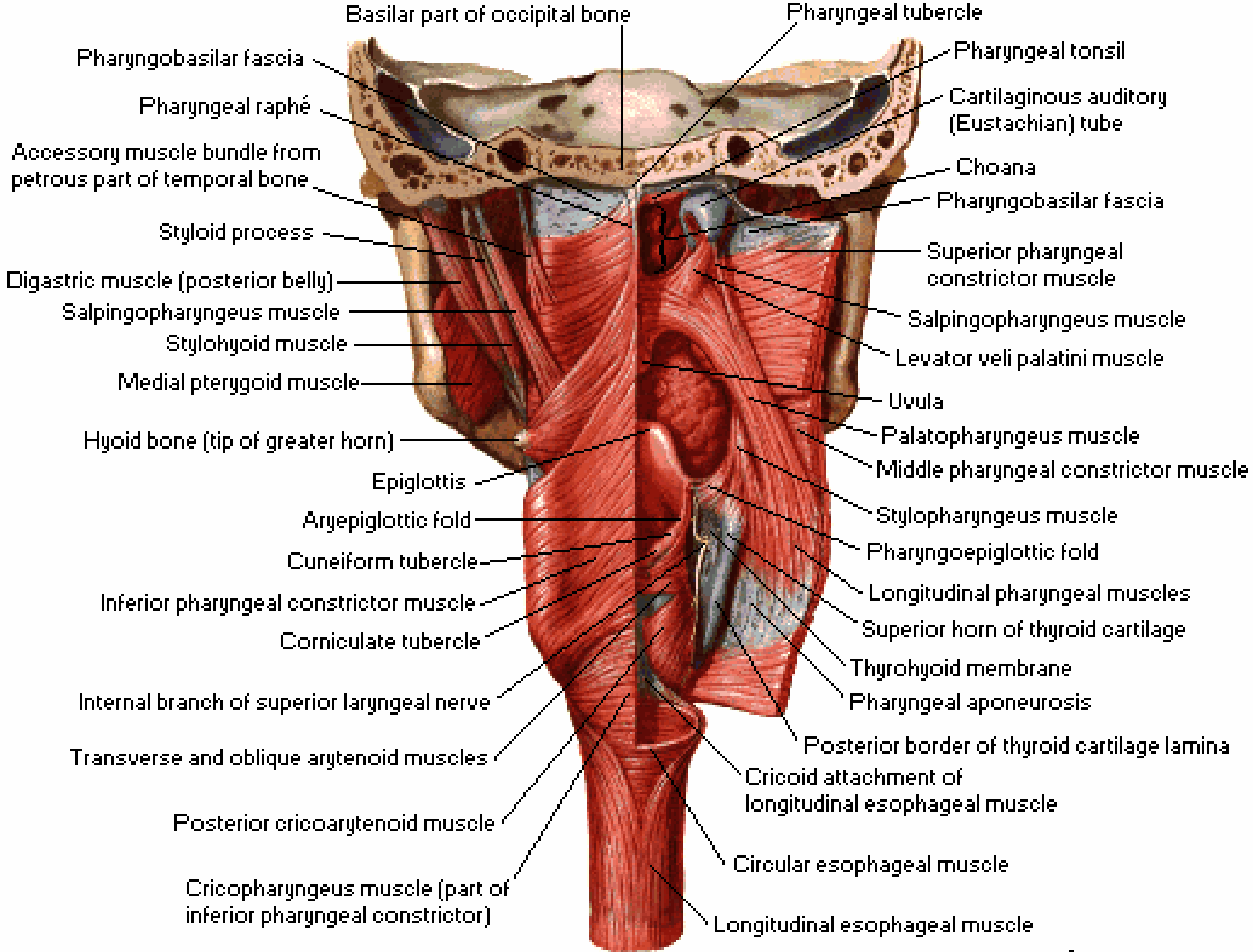
Sagittal Section



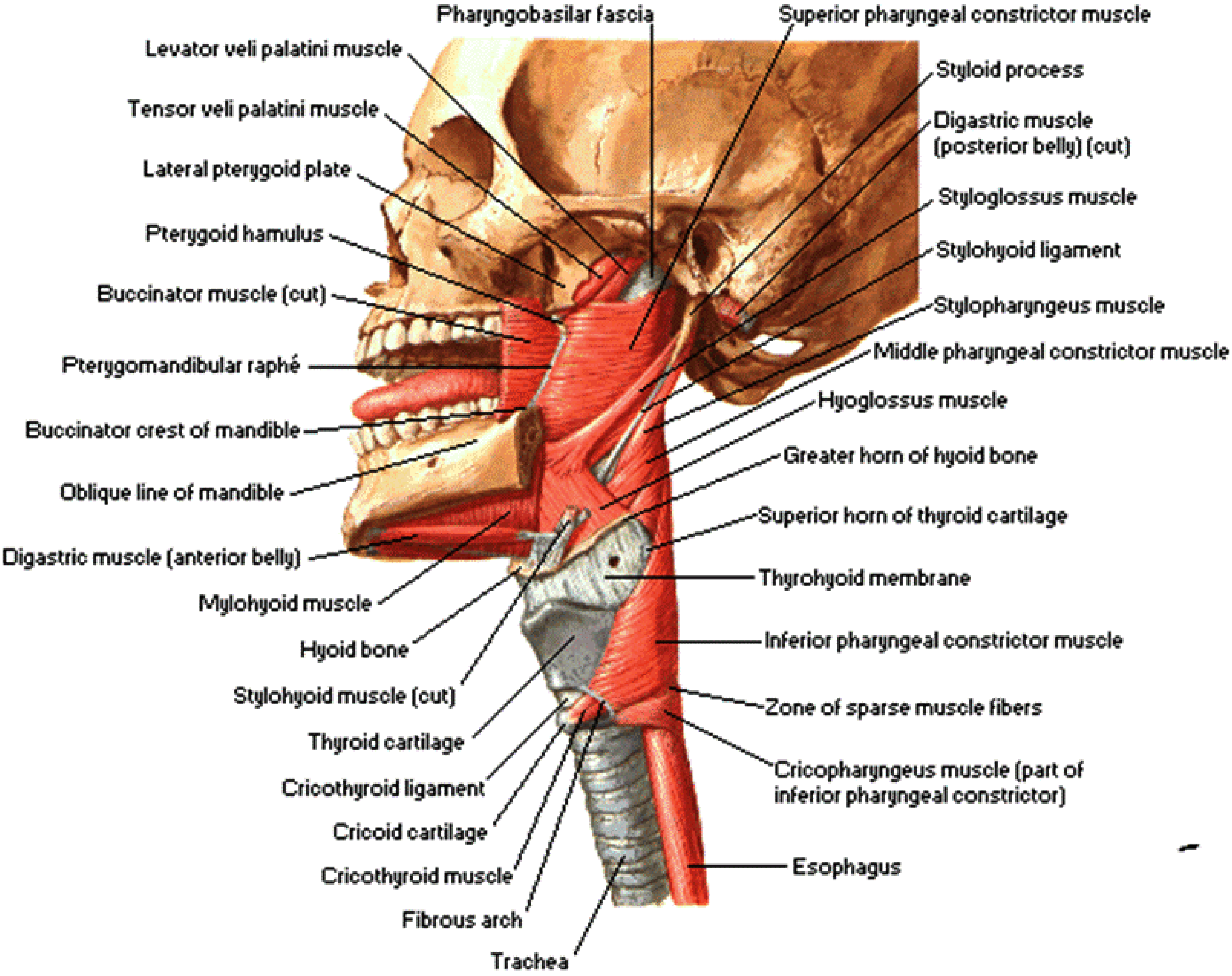
Opened Posterior View

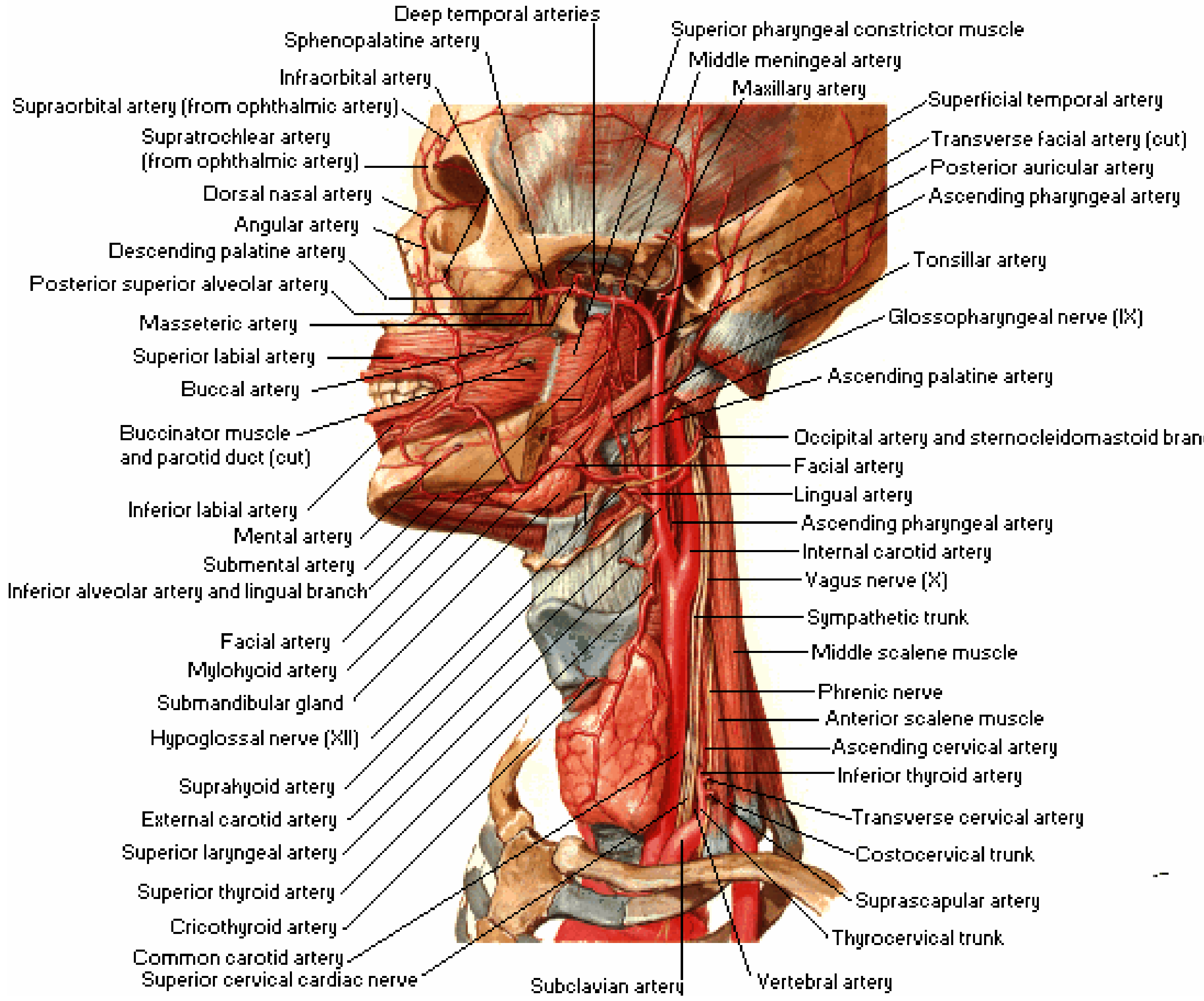


Partially Opened Posterior View

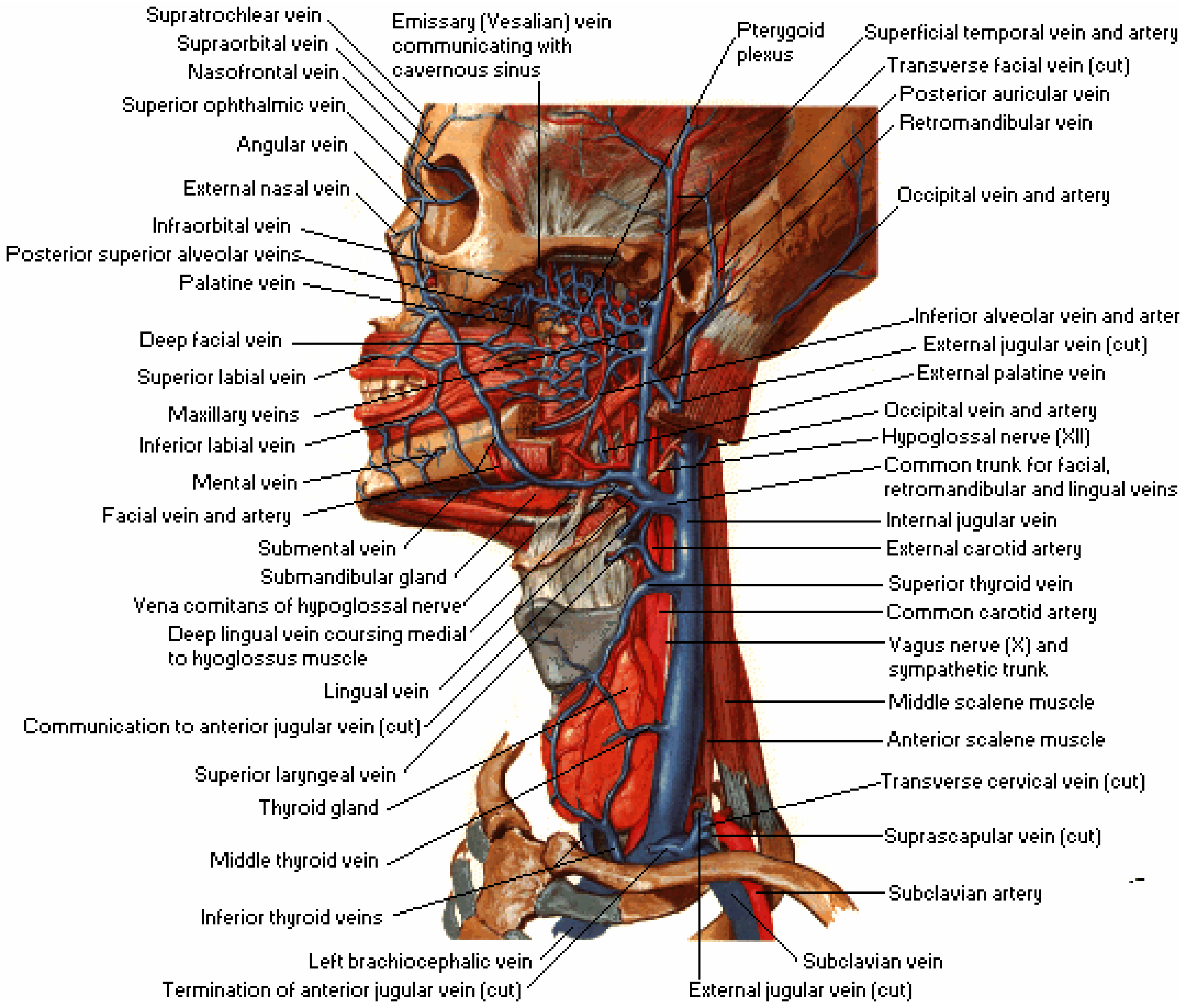


Lateral View

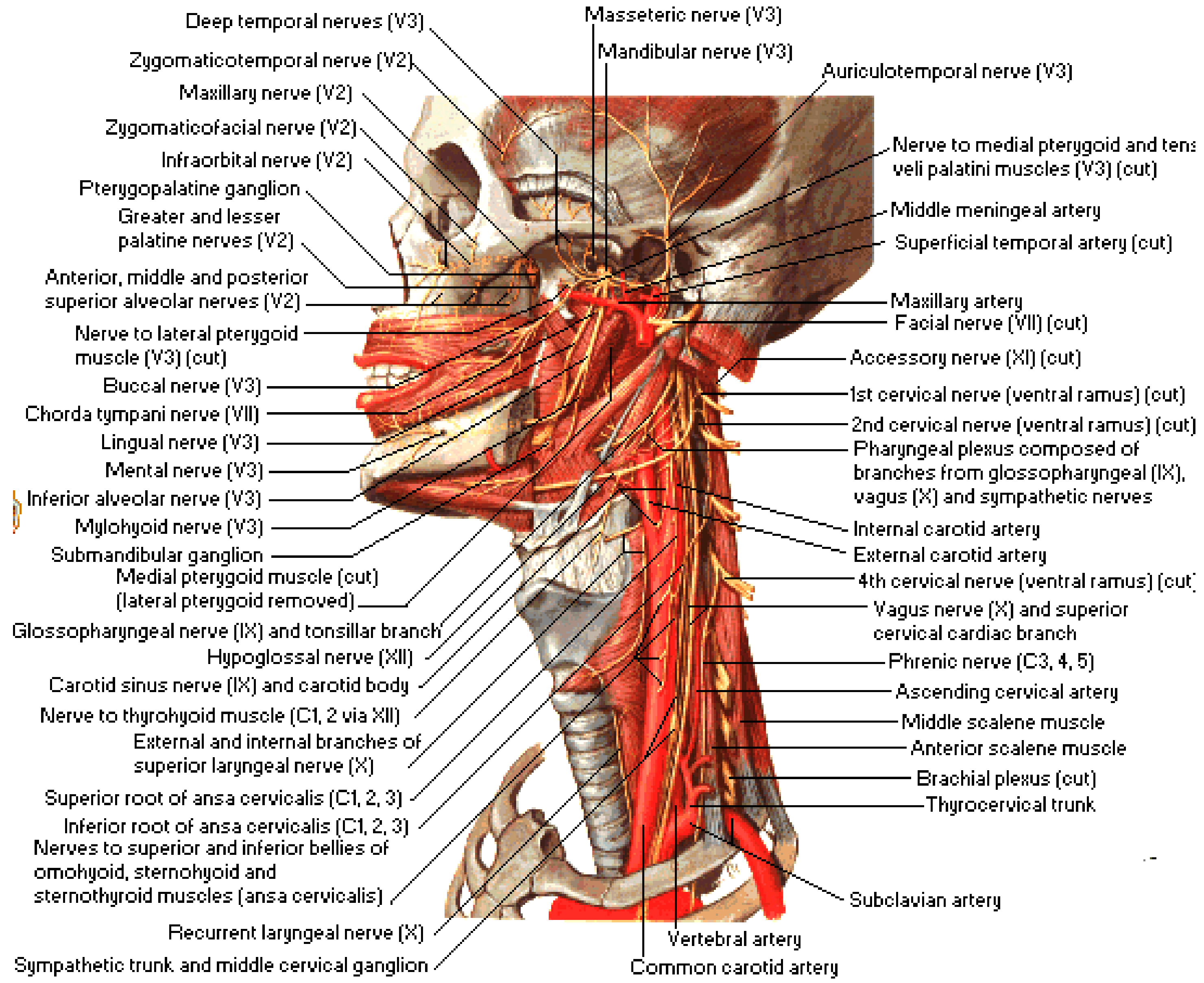




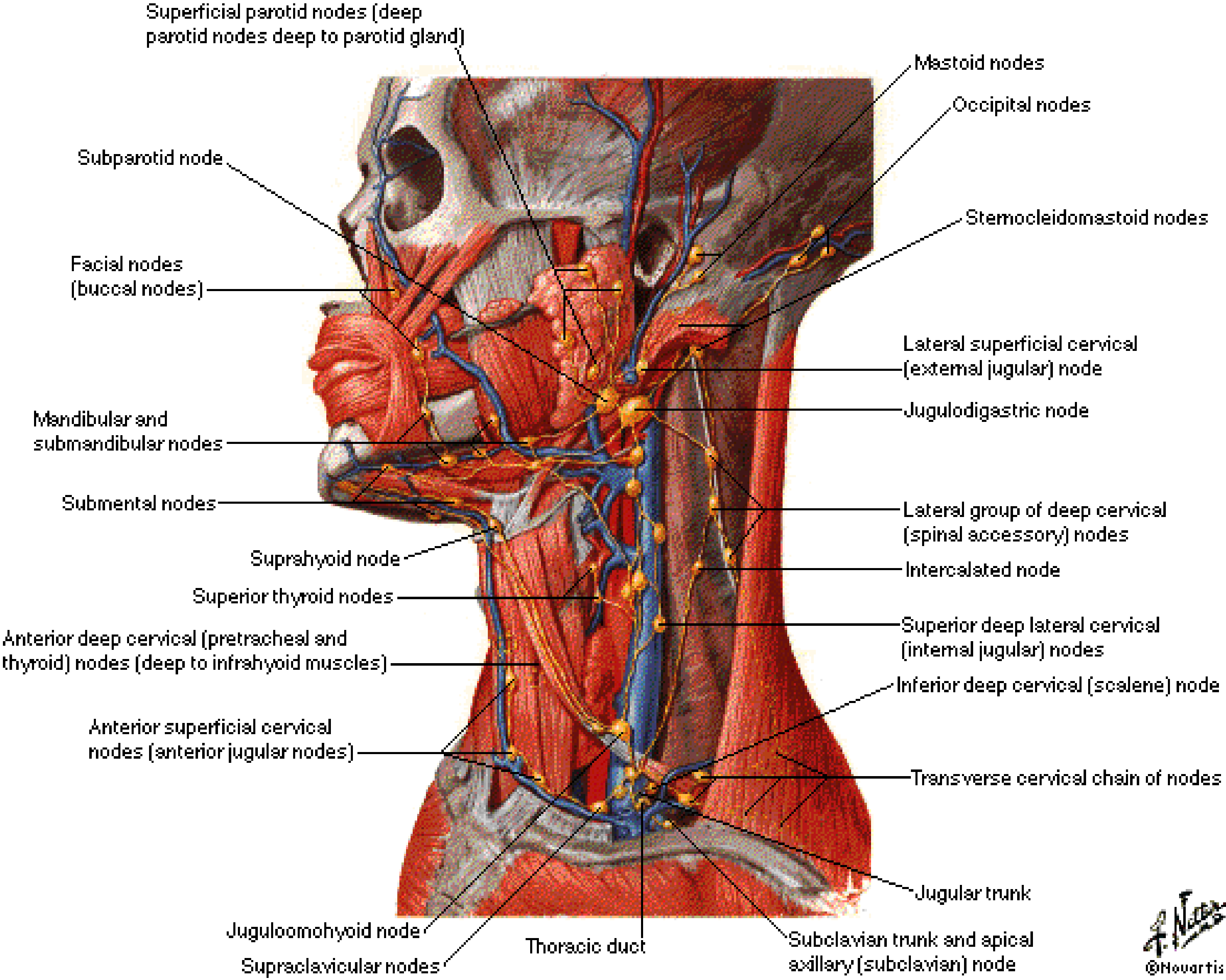
Deep temporal arteries
Sphenopalatine artery
Infraorbital artery
Supraorbital artery (from ophthalmic artery)
Supratrochlear artery (from ophthalmic artery)
Dorsal nasal artery
Angular artery
Descending palatine artery
Posterior superior alveolar artery
Masseteric artery
Superior labial artery
Buccal artery
Buccinator muscle and parotid duct (cut)
Inferior labial artery
Mental artery
Submental artery
Inferior alveolar artery and lingual branch
Facial artery
Mylohyoid artery
Submandibular gland
Hypoglossal nerve (XII)
Suprahyoid artery
External carotid artery
Superior laryngeal artery
Superior thyroid artery
Cricothyroid artery
Common carotid artery
Superior cervical cardiac nerve
Subclavian artery
Vertebral artery
Superior pharyngeal constrictor muscle
Middle meningeal artery
Maxillary artery
Superficial temporal artery
Transverse facial artery (cut)
Posterior auricular artery
Ascending pharyngeal artery
Tonsillar artery
Glossopharyngeal nerve (IX)
Ascending palatine artery
Occipital artery and sternocleidomastoid bran
Facial artery
Lingual artery
Ascending pharyngeal artery
Internal carotid artery
Vagus nerve (X)
Sympathetic trunk
Middle scalene muscle
Phrenic nerve
Anterior scalene muscle
Ascending cervical artery
Inferior thyroid artery
Transverse cervical artery
Costocervical trunk
Suprascapular artery
Thyrocervical trunk



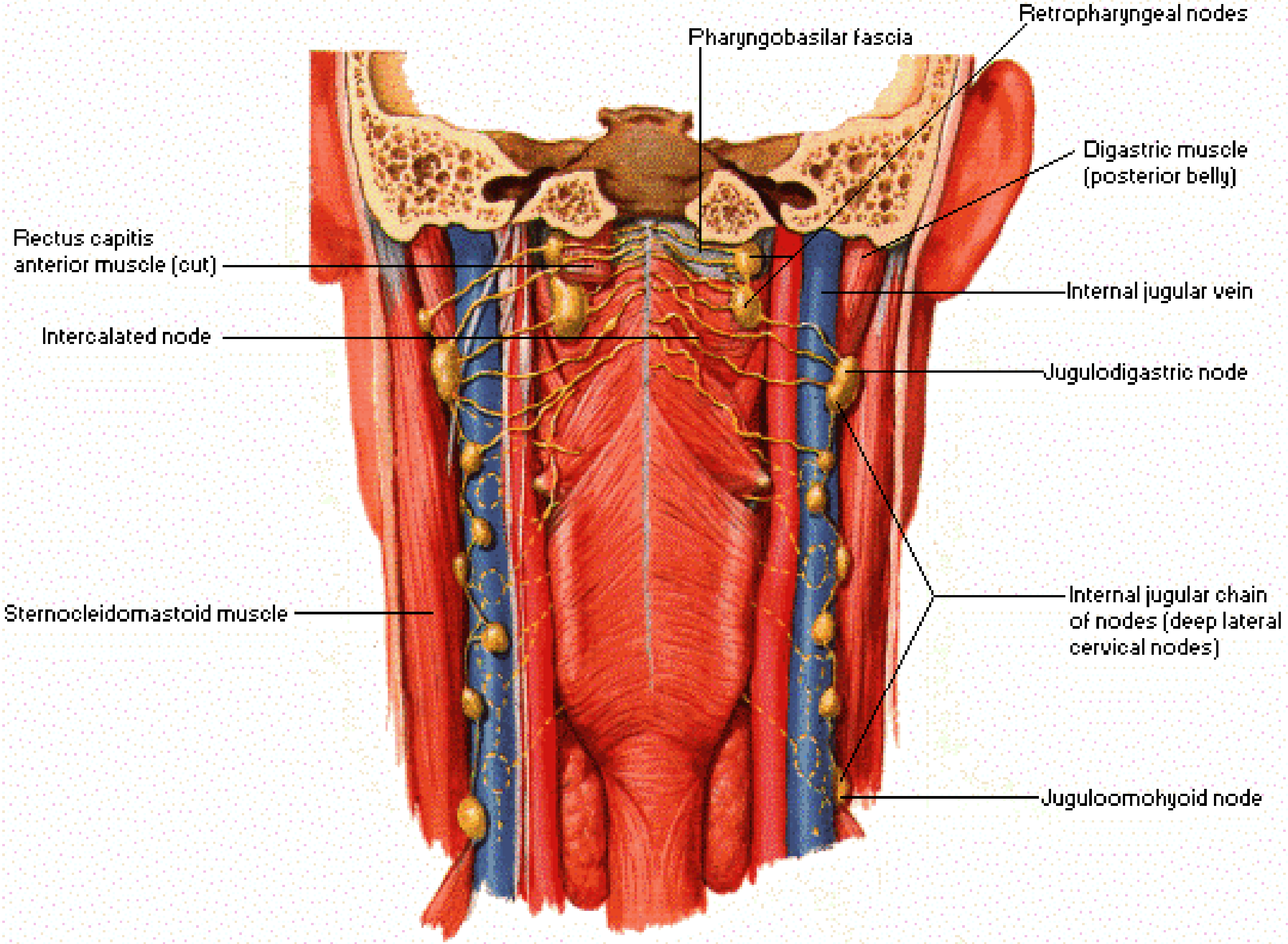
Supratrochlear vein
Supraorbital vein
Nasofrontal vein
Superior ophthalmic vein
Angular vein
External nasal vein
Infraorbital vein
Posterior superior alveolar veins
Palatine vein
Deep facial vein
Superior labial vein
Maxillary veins
Inferior labial vein
Mental vein
Facial vein and artery
Submental vein
Submandibular gland
Vena comitans of hypoglossal nerve
Deep lingual vein coursing medial to hyoglossus muscle
Lingual vein
Communication to anterior jugular vein (cut)
Superior laryngeal vein
Thyroid gland
Middle thyroid vein
Inferior thyroid veins
Left brachiocephalic vein
Termination of anterior jugular vein (cut)
Emissary (Vesalian) vein communicating with cavernous sinus
Pterygoid plexus
Superficial temporal vein and artery
Transverse facial vein (cut)
Posterior auricular vein
Retromandibular vein
Occipital vein and artery
Inferior alveolar vein and arter
External jugular vein (cut)
External palatine vein
Occipital vein and artery
Hypoglossal nerve (XII)
Common trunk for facial, retromandibular and lingual veins
Internal jugular vein
External carotid artery
Superior thyroid vein
Common carotid artery
Vagus nerve (X) and sympathetic trunk
Middle scalene muscle
Anterior scalene muscle
Transverse cervical vein (cut)
Suprascapular vein (cut)
Subclavian artery
Subclavian vein
External jugular vein (cut)


Deep temporal nerves (V3)
Zygomaticotemporal nerve (V2)
Maxillary nerve (V2)
Zygomaticofacial nerve (V2)
Infraorbital nerve (V2)
Pterygopalatine ganglion
Greater and lesser palatine nerves (V2)
Anterior, middle and posterior superior alveolar nerves (V2)
Nerve to lateral pterygoid muscle (V3) (cut)
Buccal nerve (V3)
Chorda tympani nerve (VII)
Lingual nerve (V3)
Mental nerve (V3)
Inferior alveolar nerve (V3)
Mylohyoid nerve (V3)
Submandibular ganglion
Medial pterygoid muscle (cut) (lateral pterygoid removed)
Glossopharyngeal nerve (IX) and tonsillar branch
Hypoglossal nerve (XII)
Carotid sinus nerve (IX) and carotid body
Nerve to thyrohyoid muscle (C1, 2 via XII)
External and internal branches of superior laryngeal nerve (X)
Superior root of ansa cervicalis (C1, 2, 3)
Inferior root of ansa cervicalis (C1, 2, 3)
Nerves to superior and inferior bellies of omohyoid, sternohyoid and sternothyroid muscles (ansa cervicalis)
Recurrent laryngeal nerve (X)
Sympathetic trunk and middle cervical ganglion
Masseteric nerve (V3)
Mandibular nerve (V3)
Auriculotemporal nerve (V3)
Nerve to medial pterygoid and tens veli palatini muscles (V3) (cut)
Middle meningeal artery
Superficial temporal artery (cut)
Maxillary artery
Facial nerve (VII) (cut)
Accessory nerve (XI) (cut)
1st cervical nerve (ventral ramus) (cut)
2nd cervical nerve (ventral ramus) (cut)
Pharyngeal plexus composed of branches from glossopharyngeal (IX), vagus (X) and sympathetic nerves
Internal carotid artery
External carotid artery
4th cervical nerve (ventral ramus) (cut)
Vagus nerve (X) and superior cervical cardiac branch
Phrenic nerve (C3, 4, 5)
Ascending cervical artery
Middle scalene muscle
Anterior scalene muscle
Brachial plexus (cut)
Thyrocervical trunk
Subclavian artery
Vertebral artery
Common carotid artery

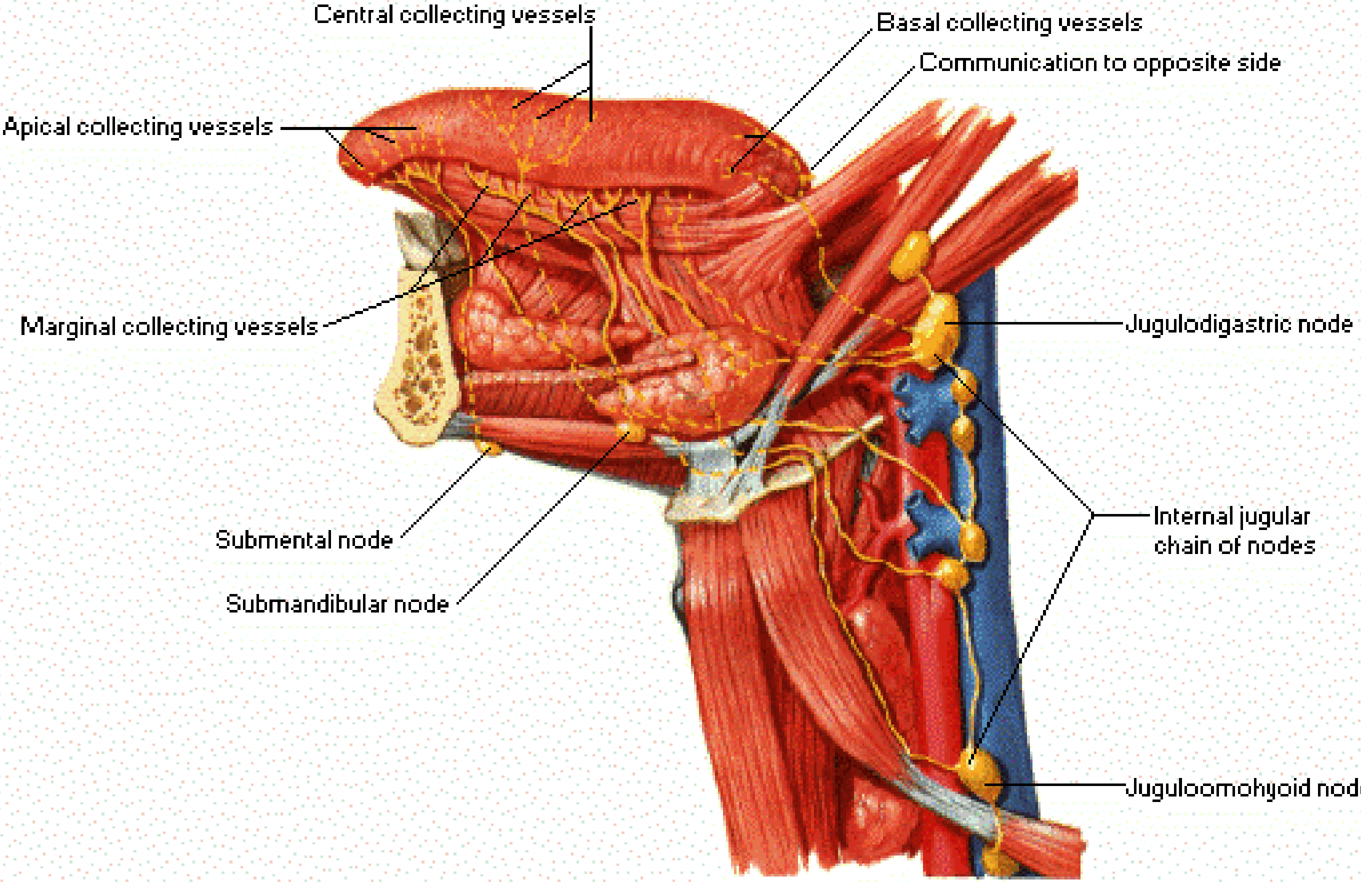
Lymph Vessels and Nodes of Oral and Pharyngeal Regions



Posterior View

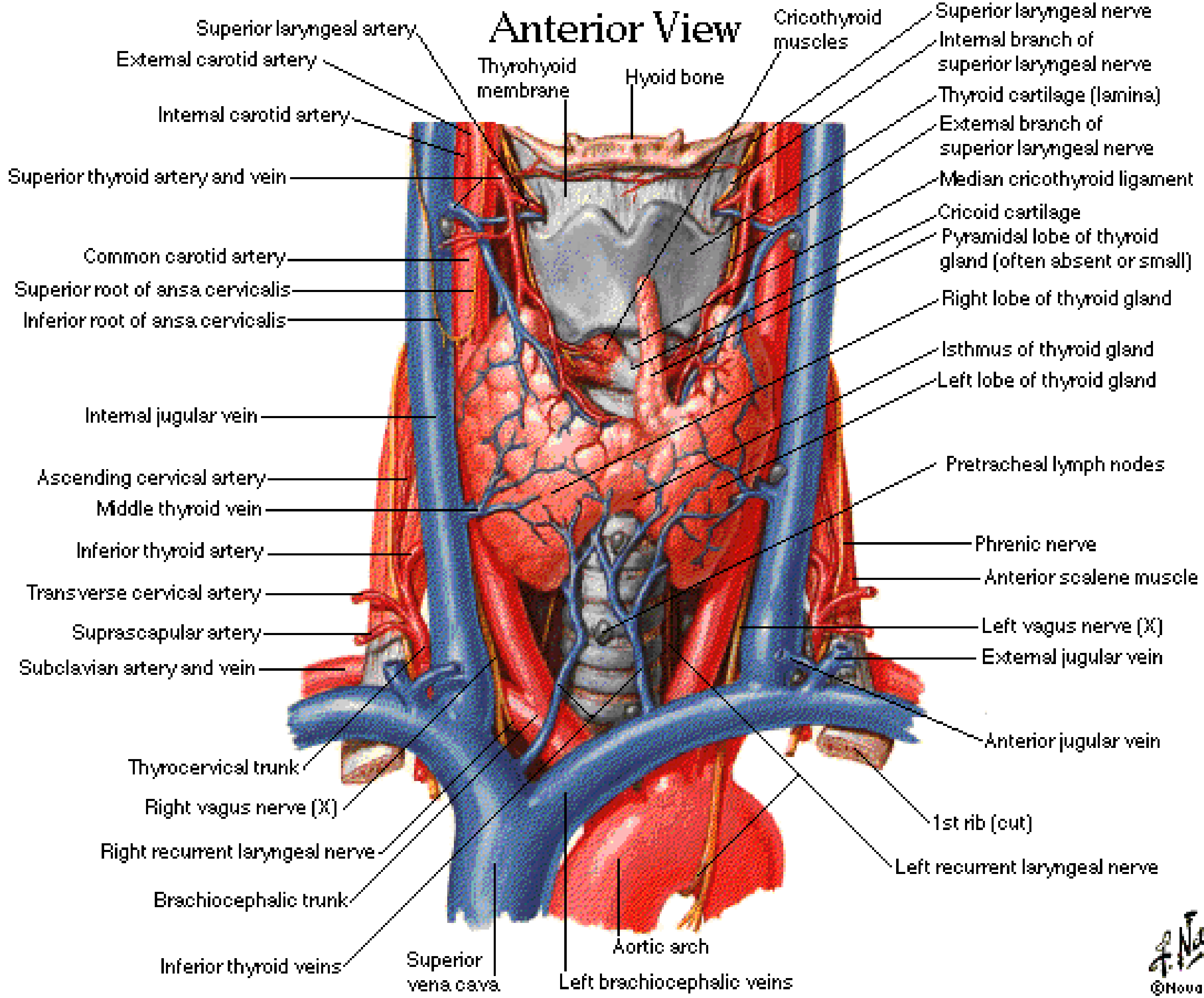


Lateral View

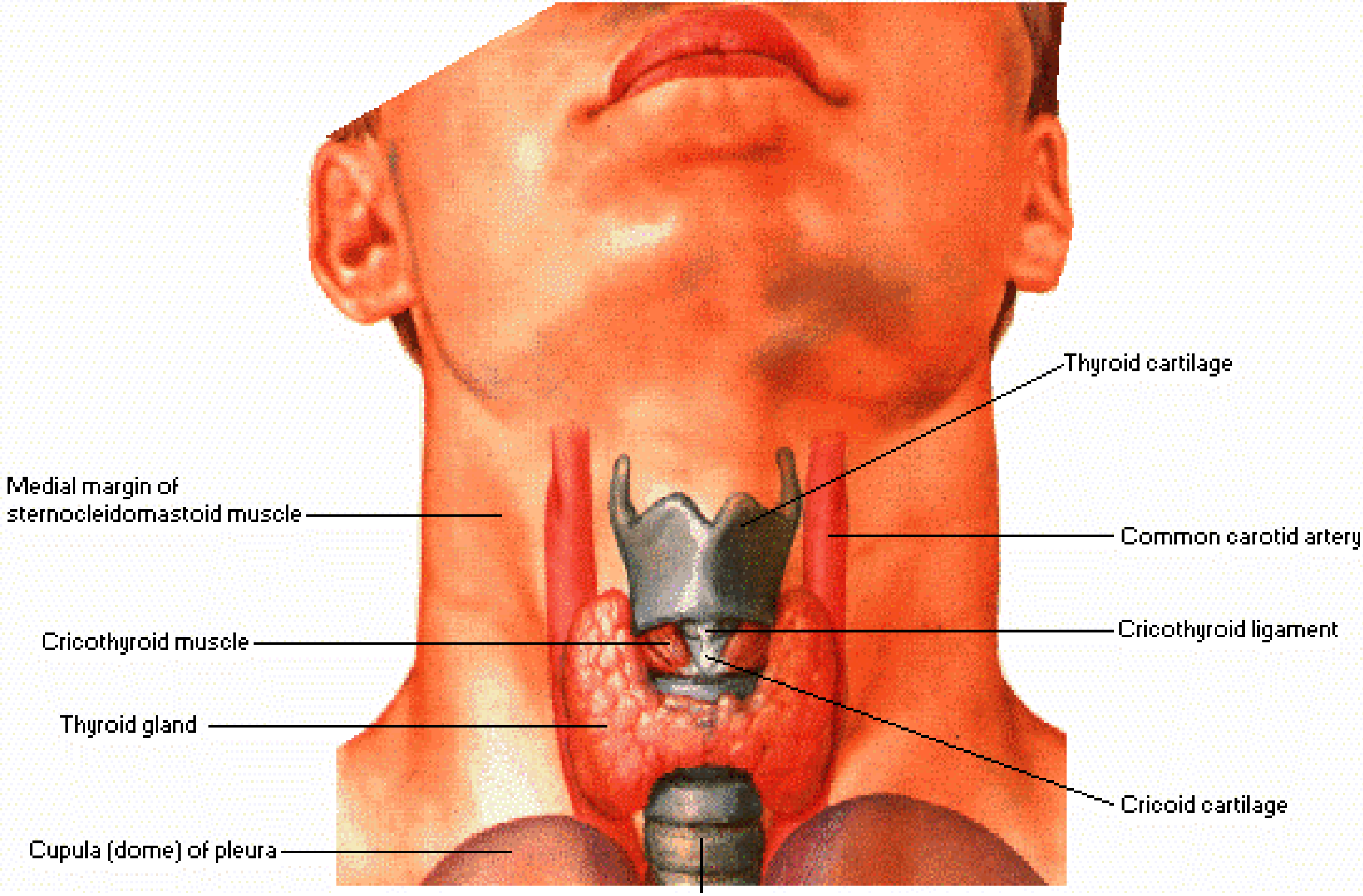


Thyroid Gland

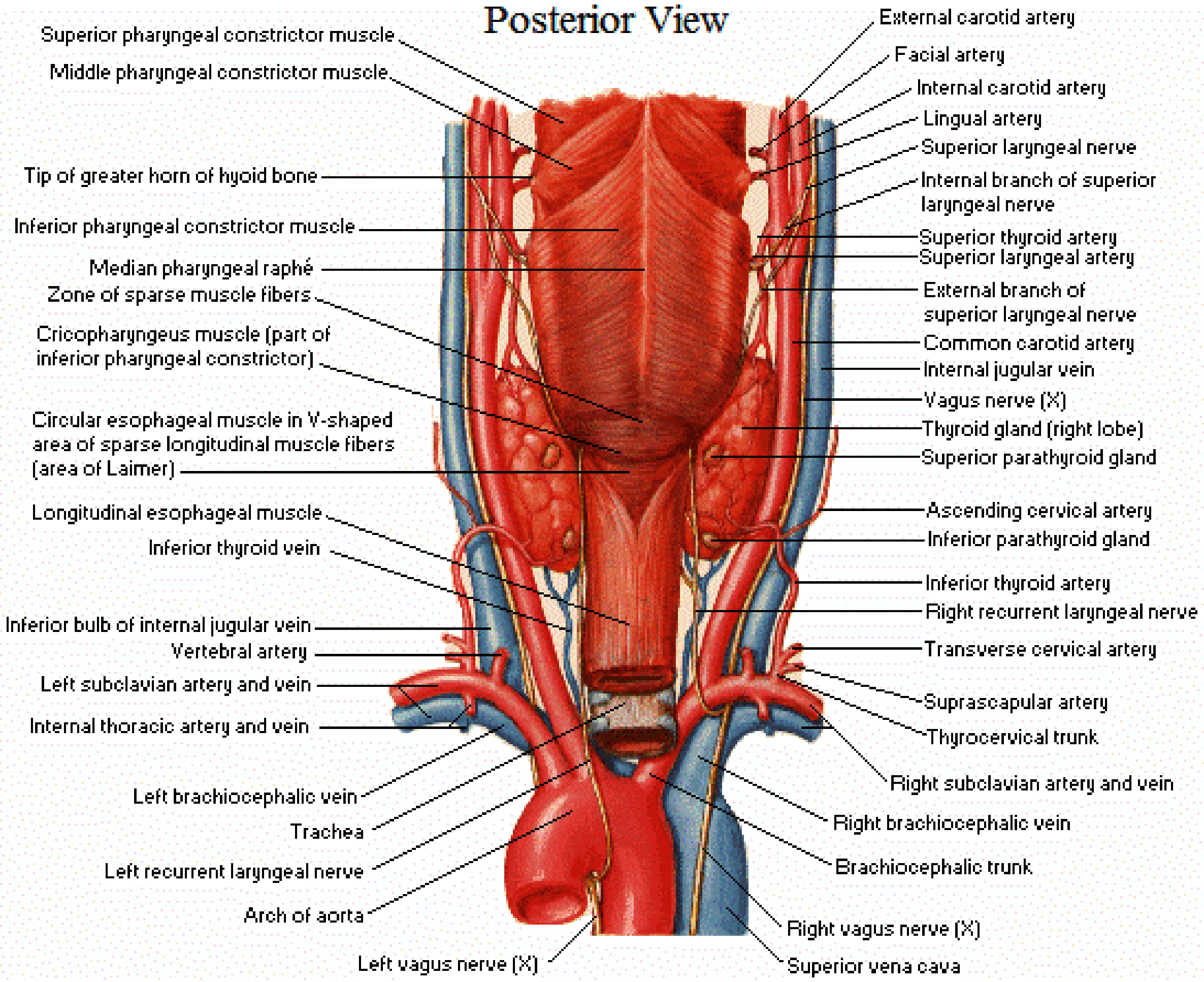
Anterior View



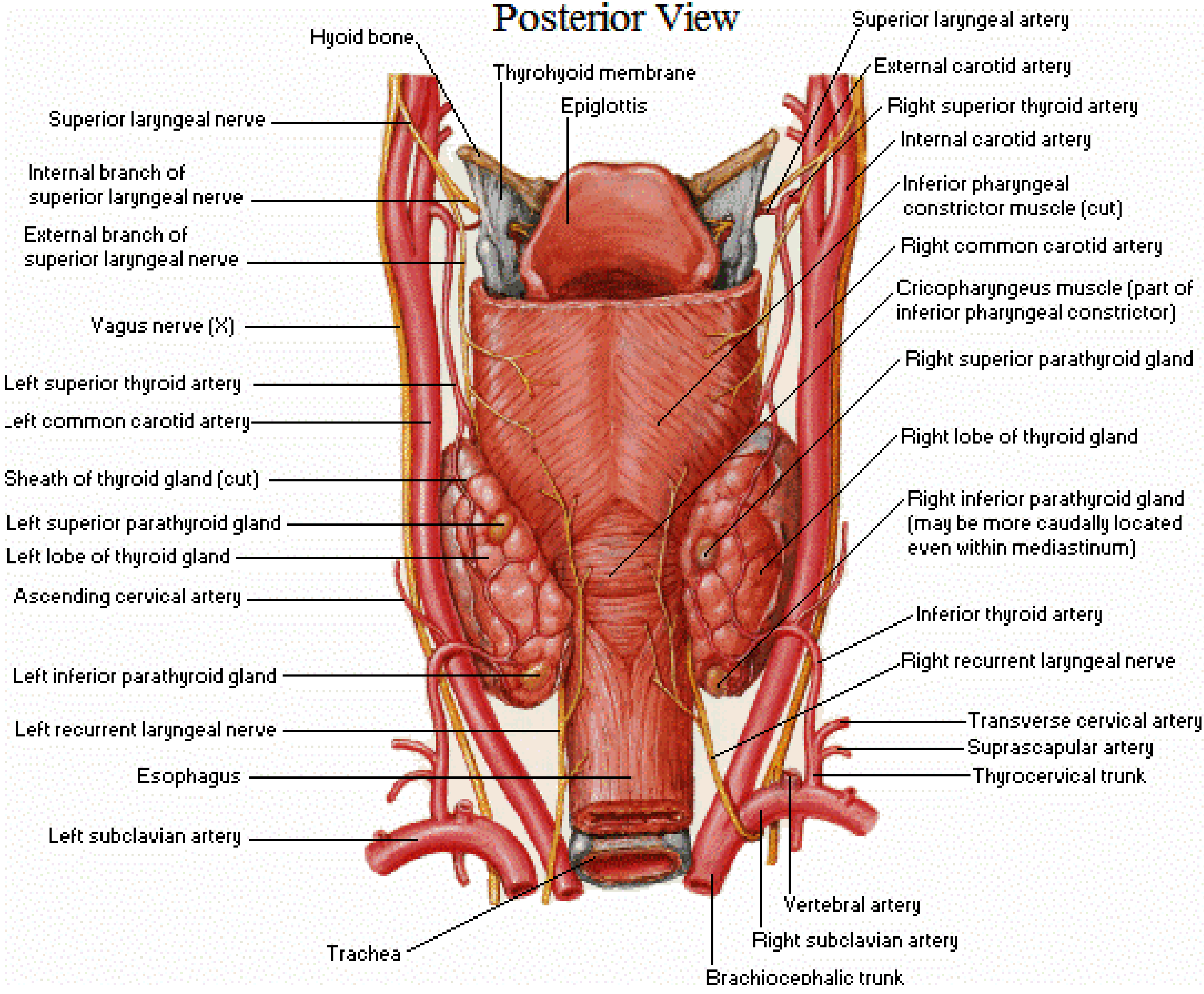
Anterior View



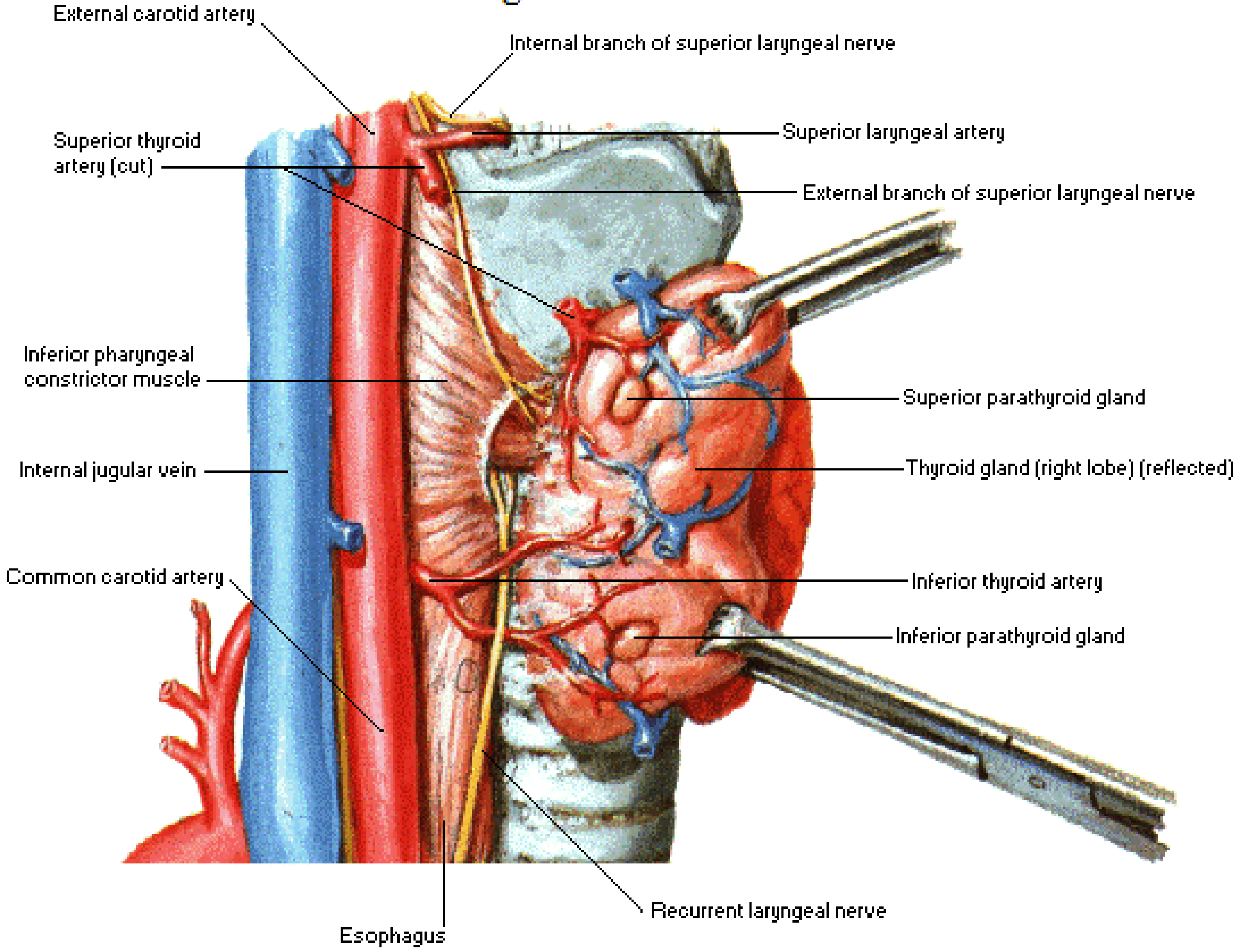
Posterior View



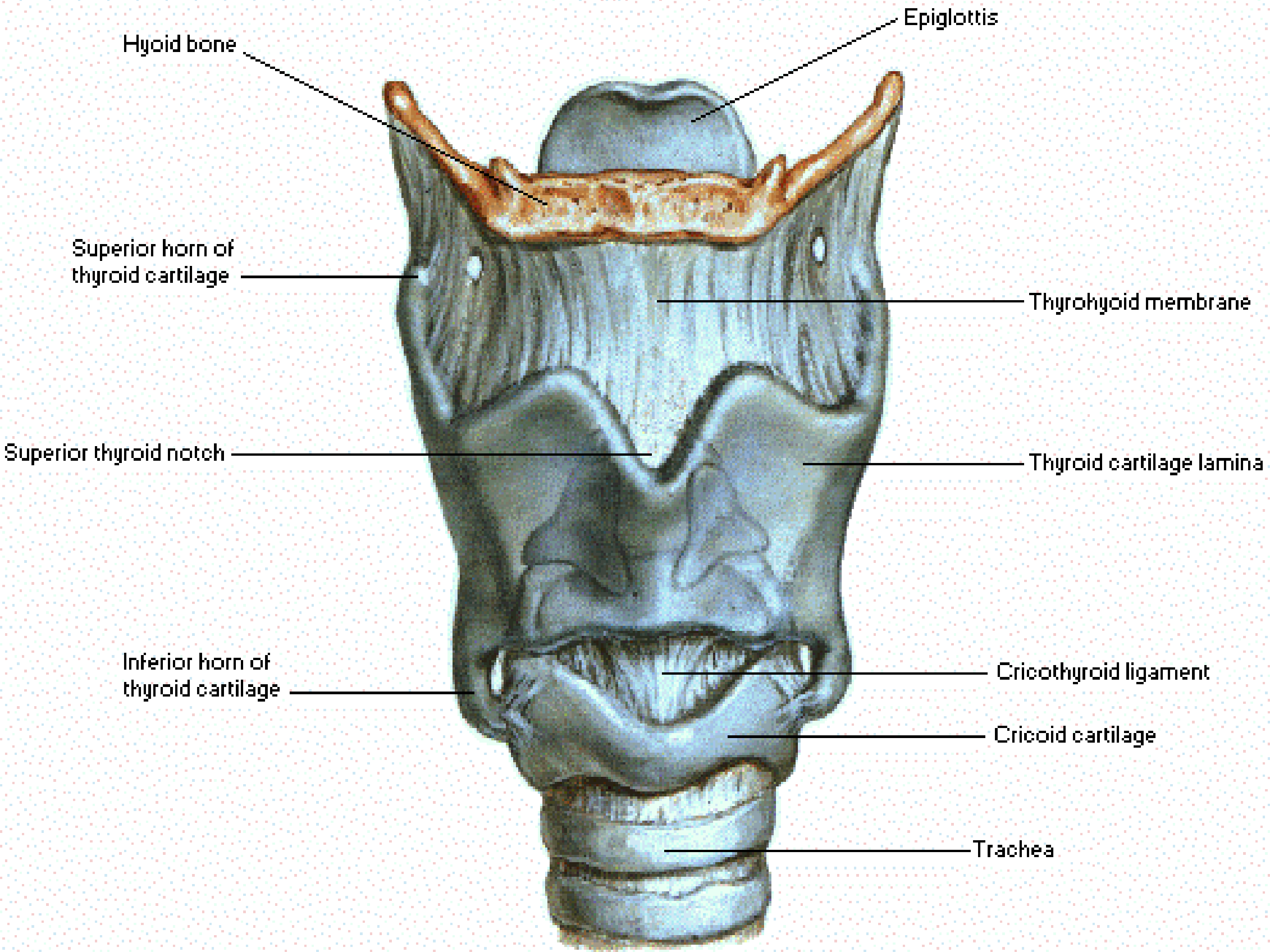
Posterior View



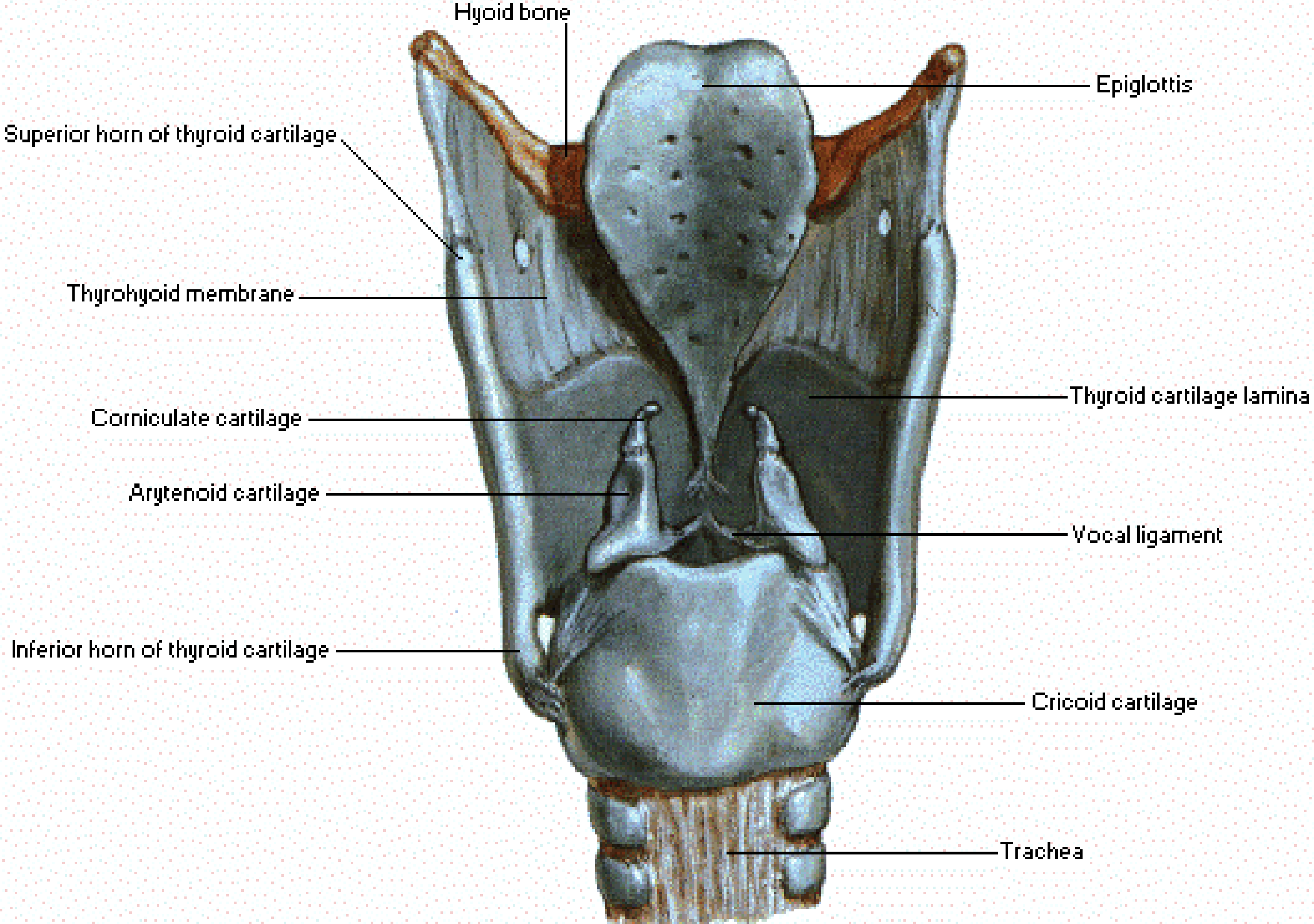
Right Lateral View



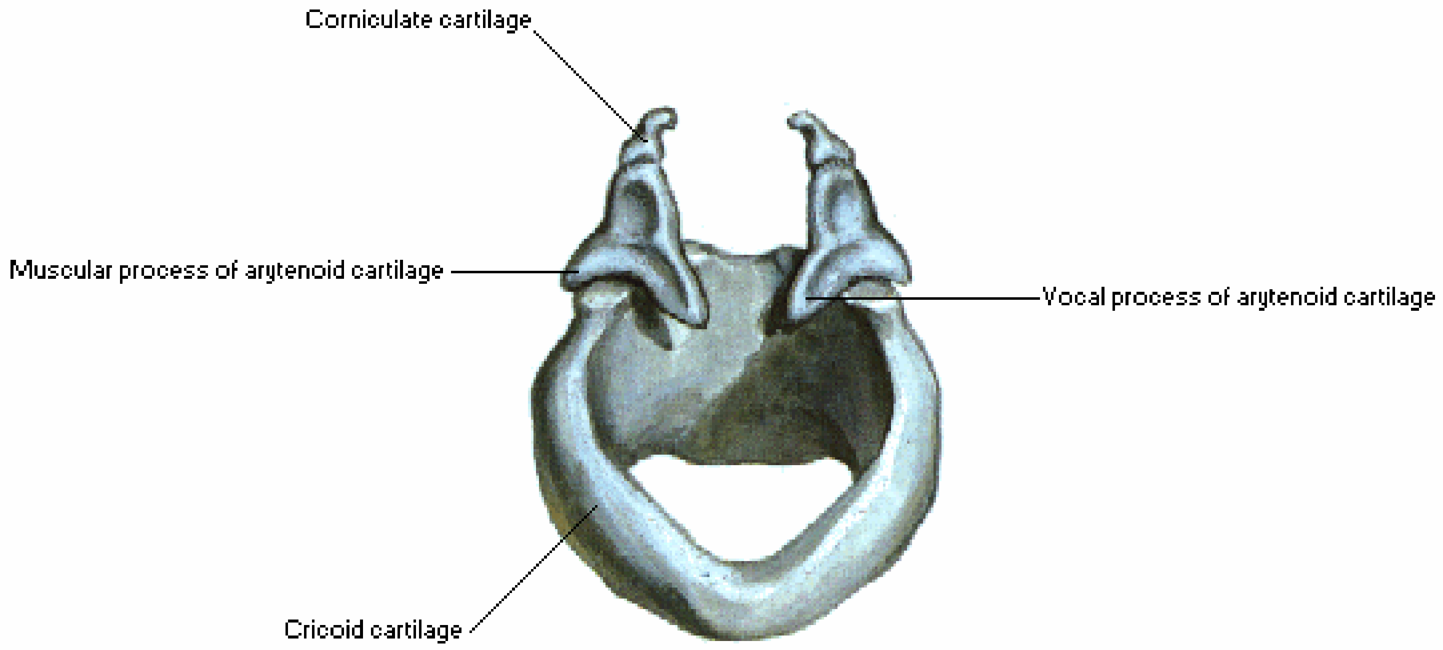
Anterior View



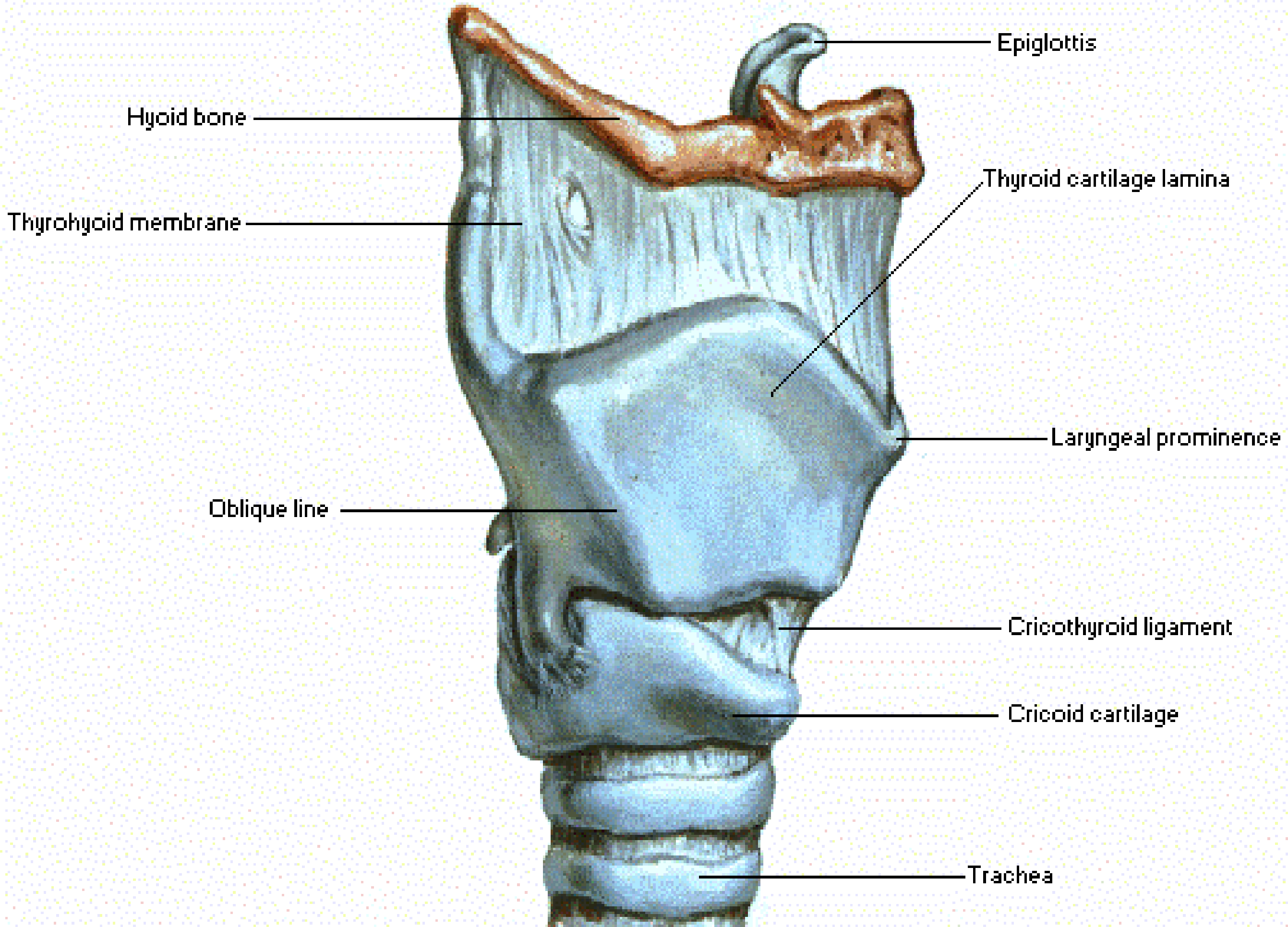
Posterior View



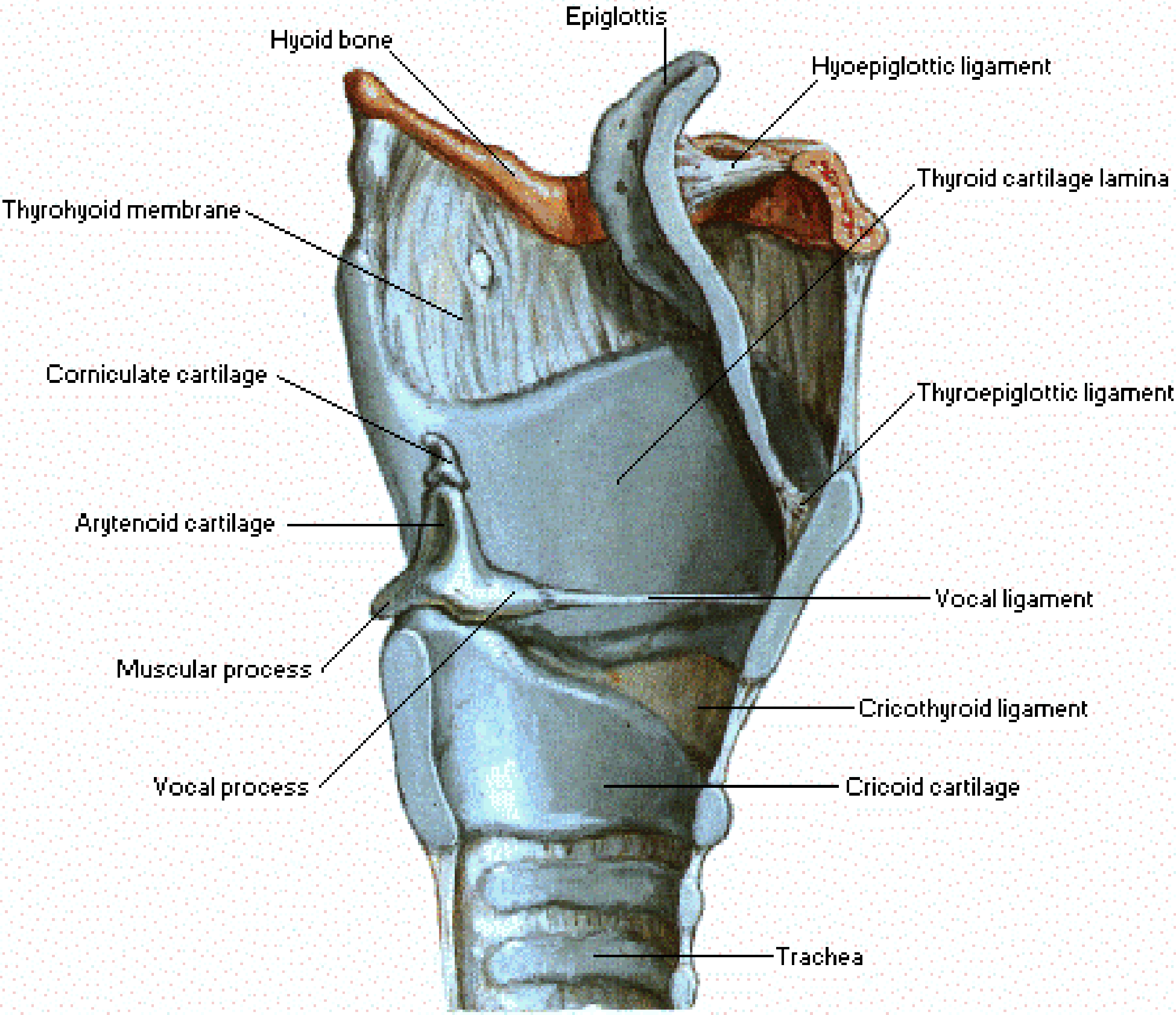
Anterosuperior View



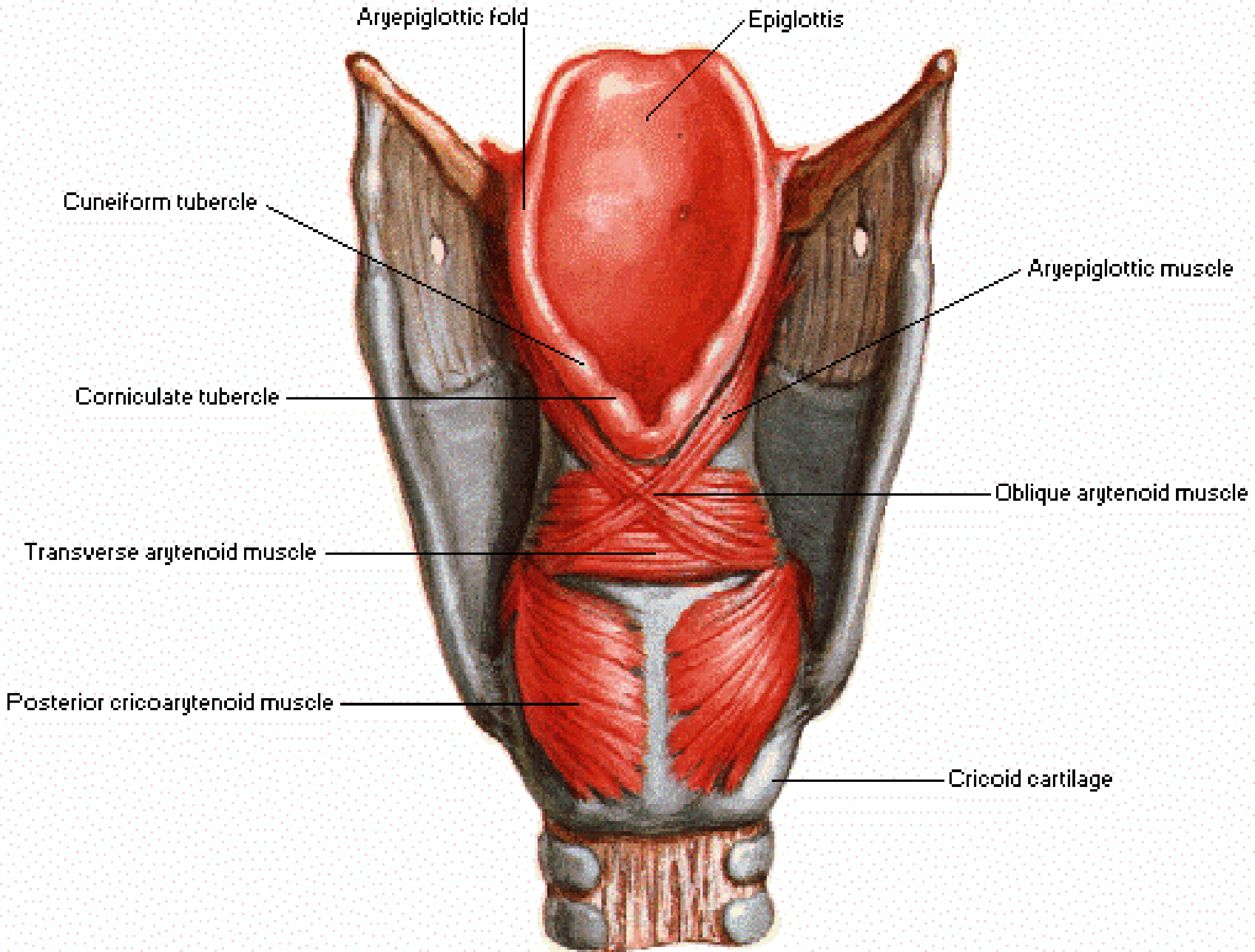
Right Lateral View



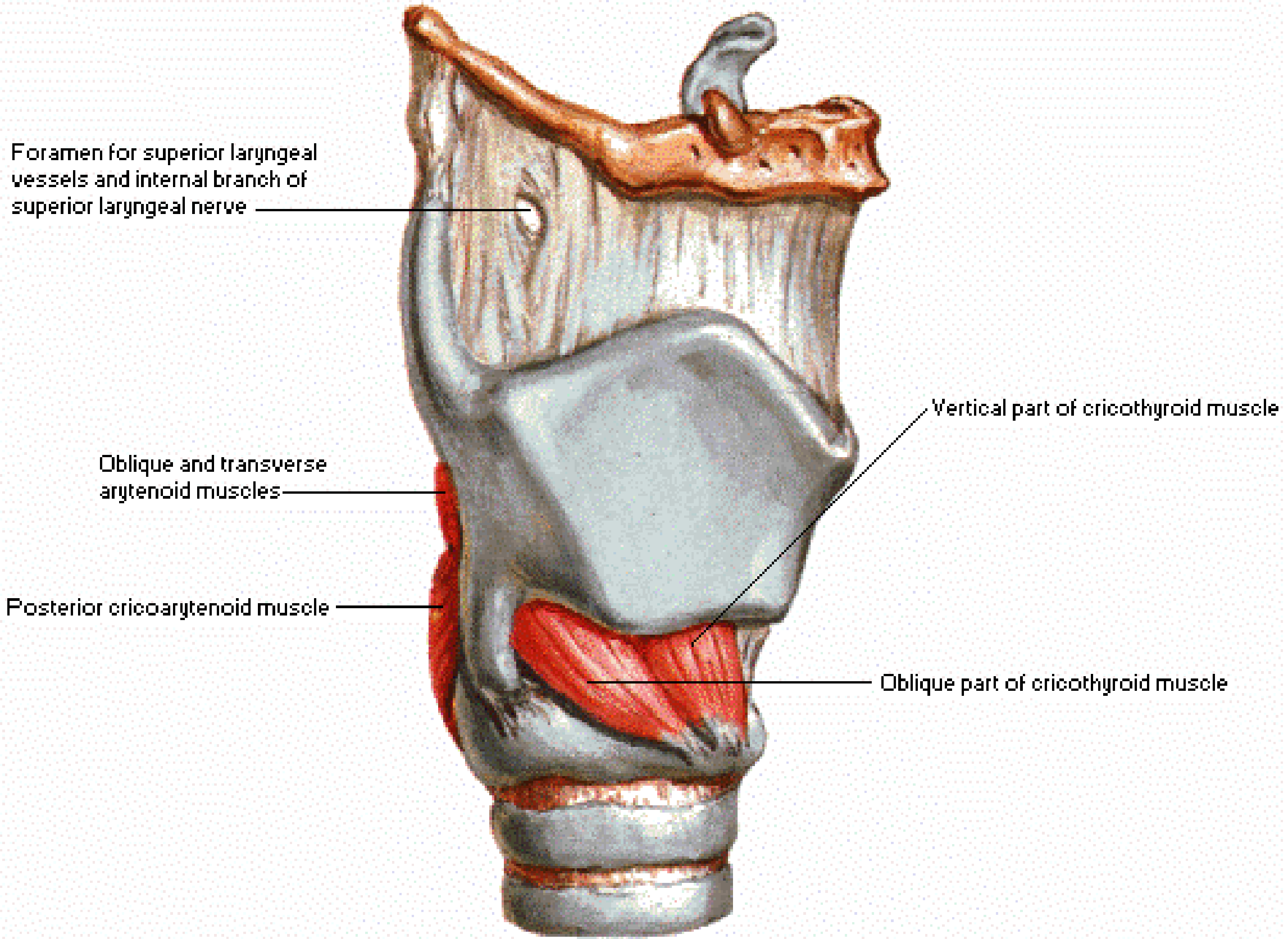
Sagittal Section



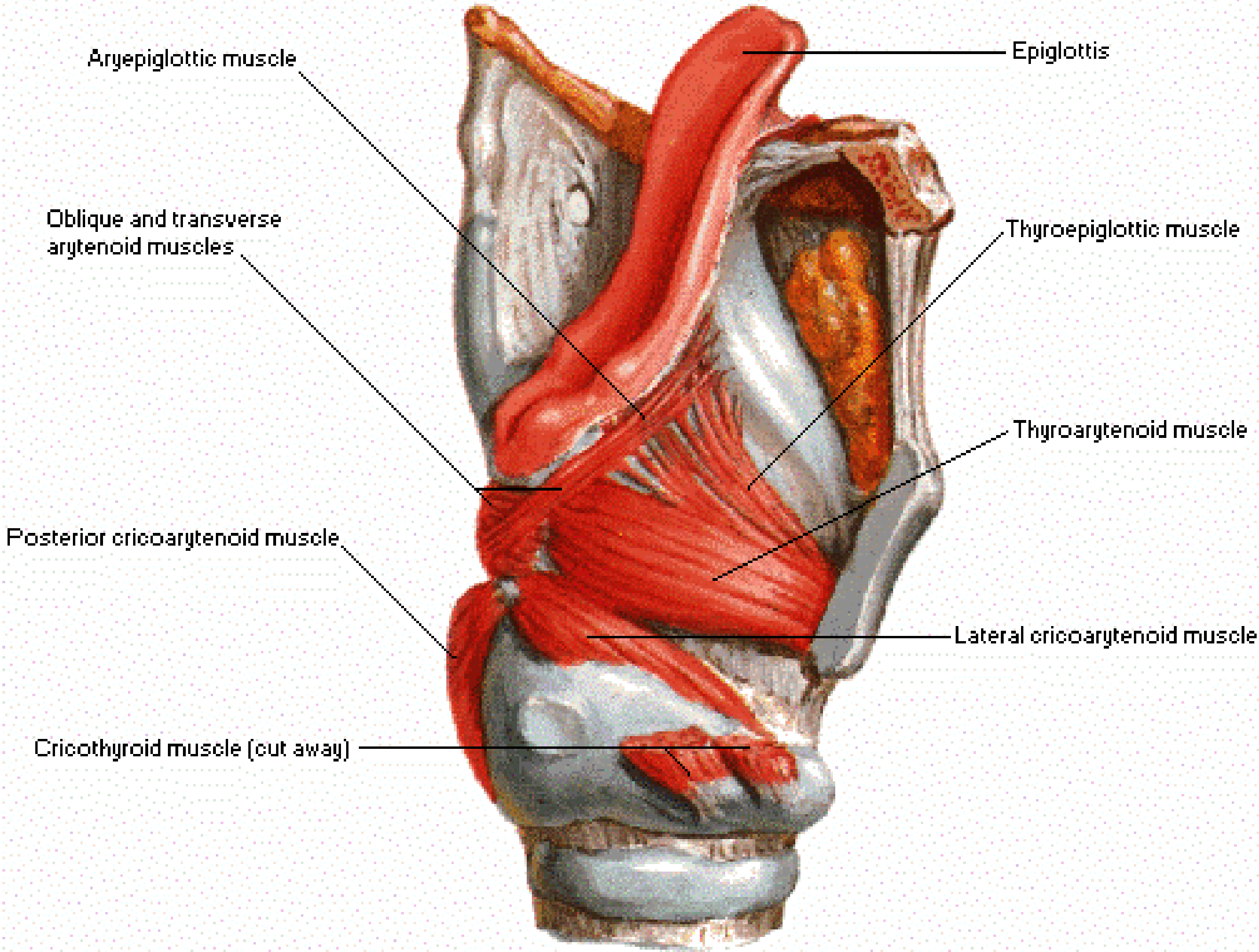
Posterior View



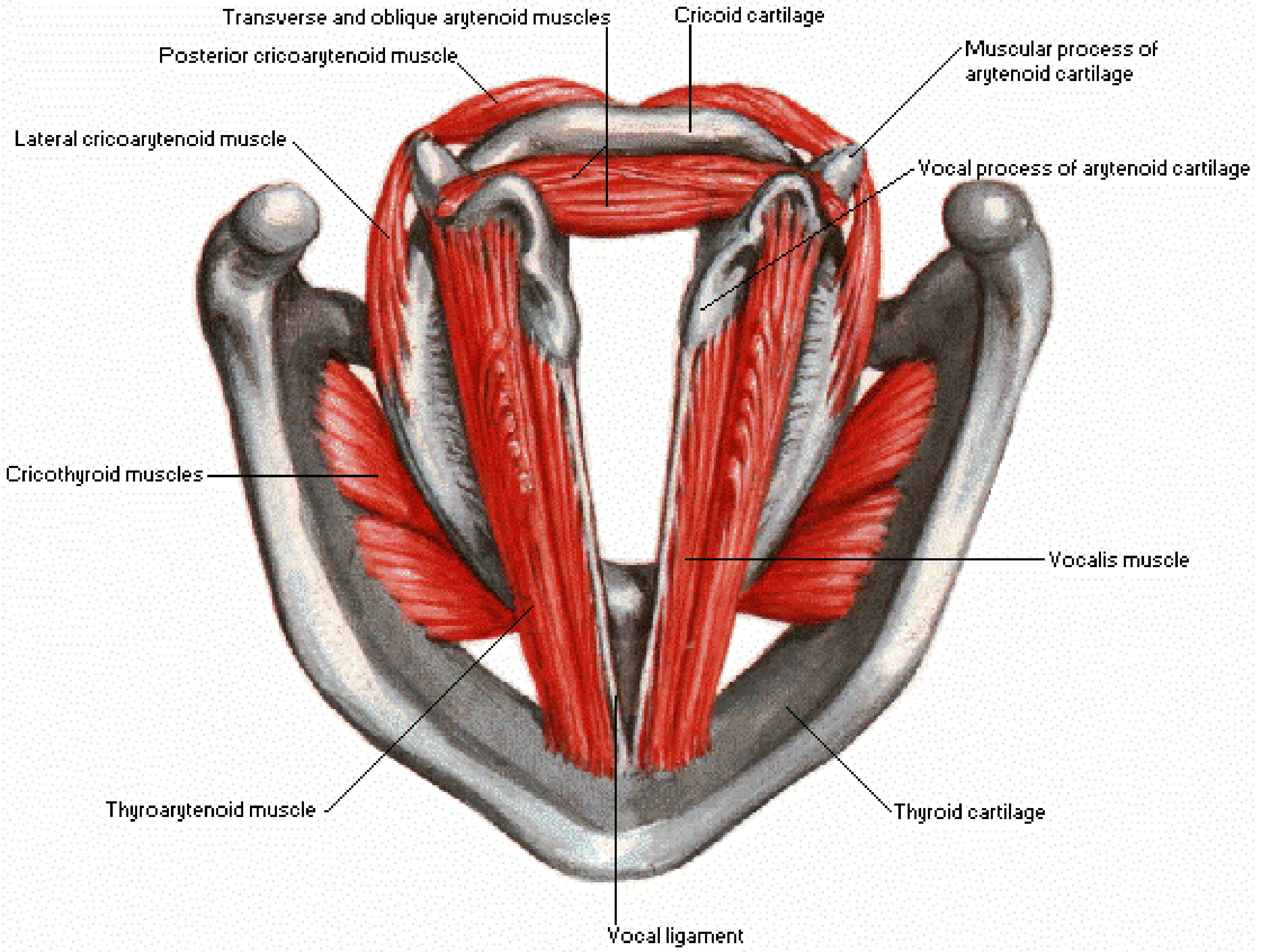
Right Lateral View



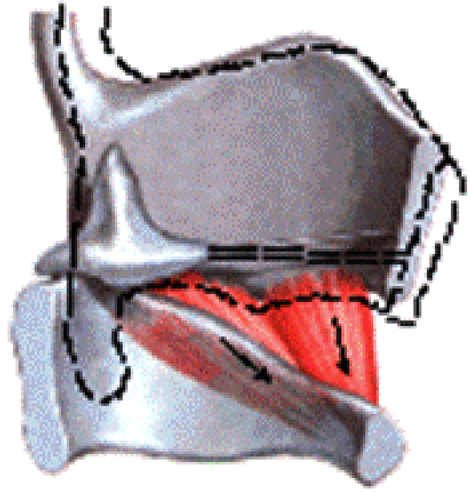
Lateral Dissection

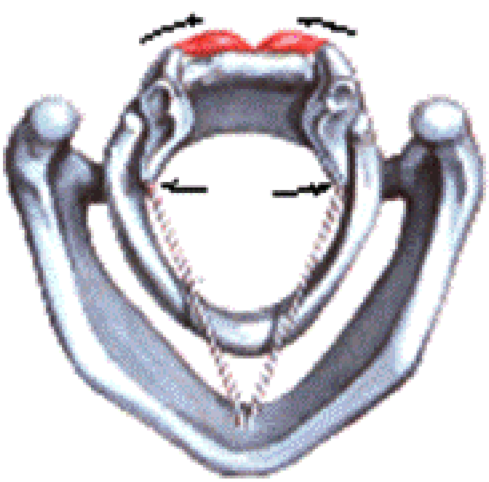


Superior View

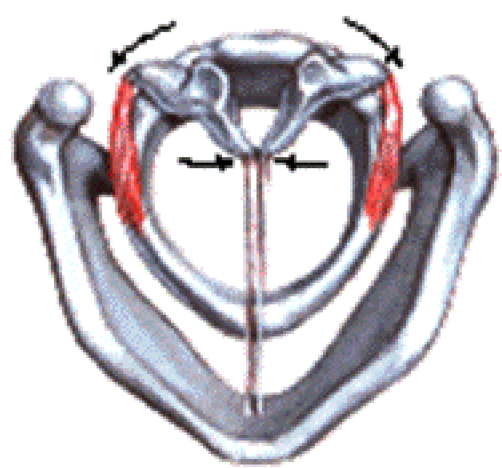


Action of cricothyroid muscles:
Lengthening (tension) of vocal folds

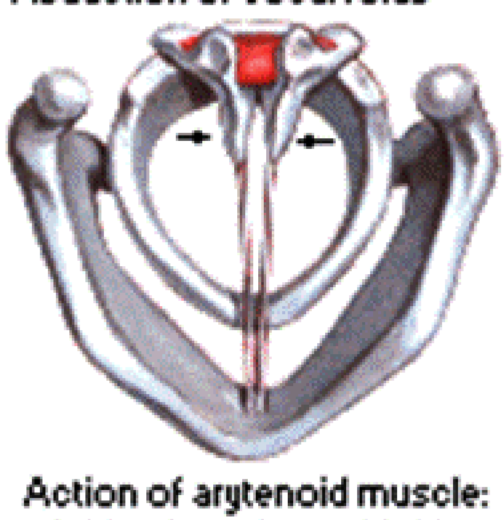




Action of posterior cricoarytenoid muscles:
Abduction of vocal folds



Action of lateral cricoarytenoid muscles:
Adduction of vocal folds

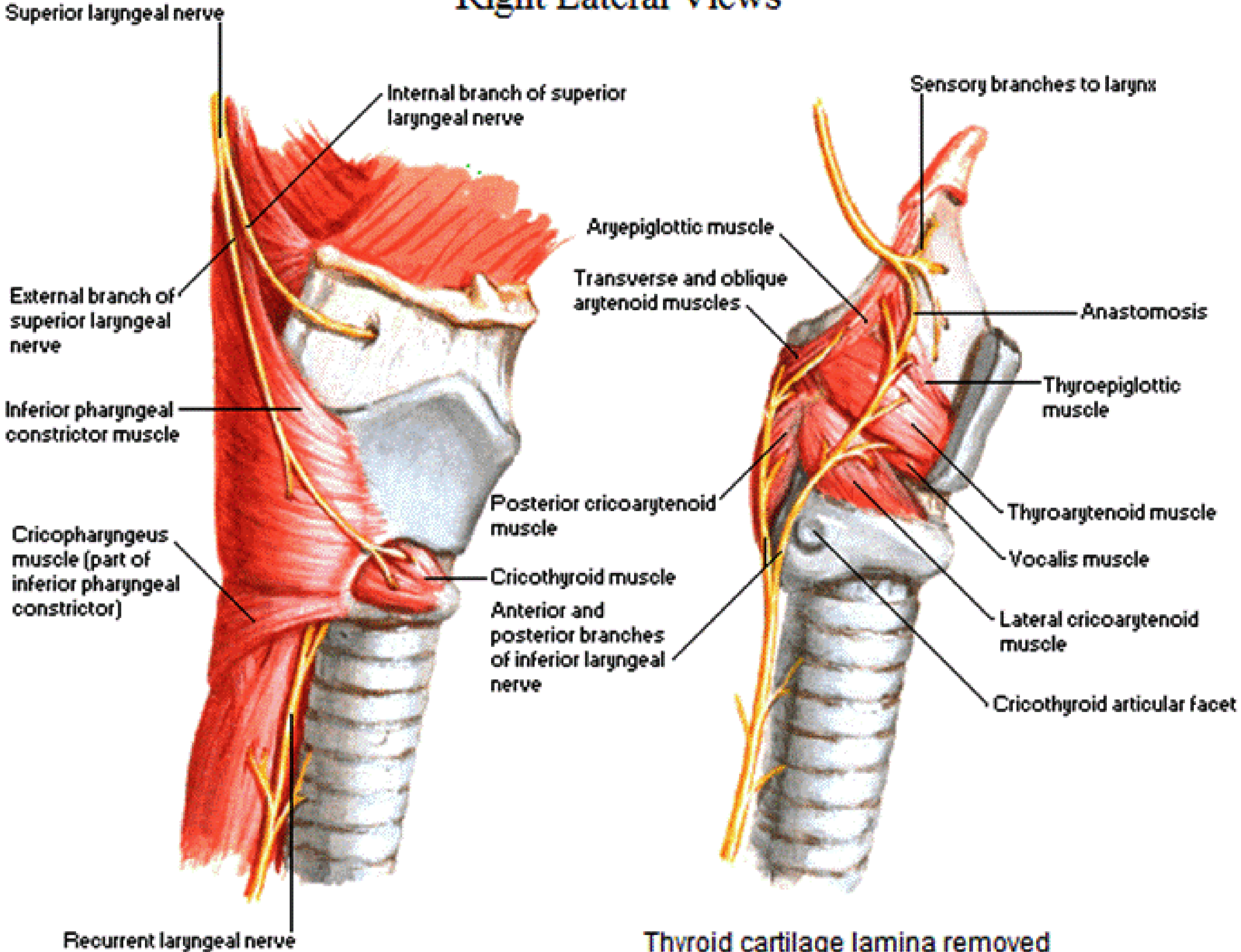


Action of arytenoid muscle:
Adduction of vocal folds



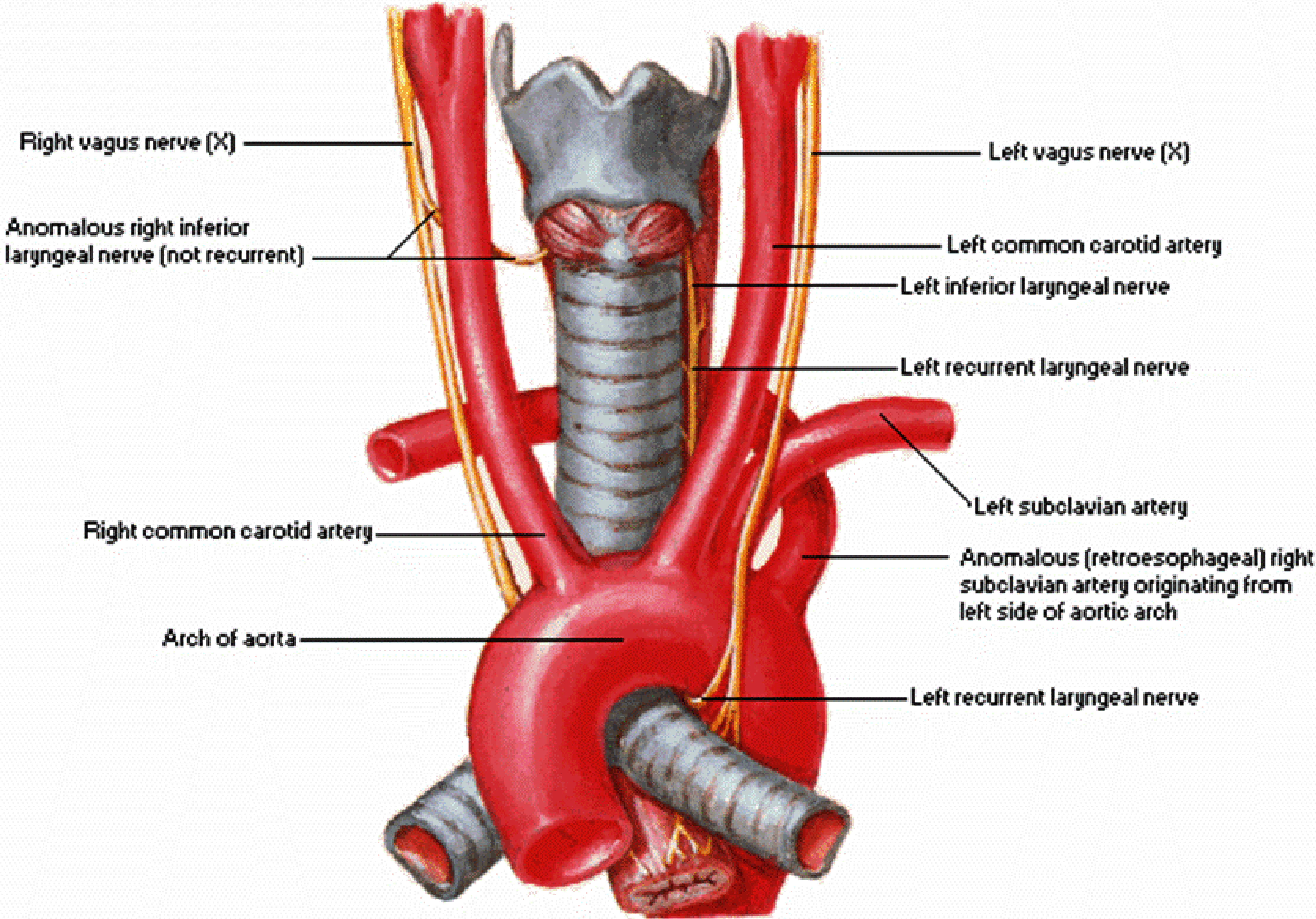
Action of vocalis and thyroarytenoid muscles
Shortening (relaxation) of vocal folds

Right Lateral Views

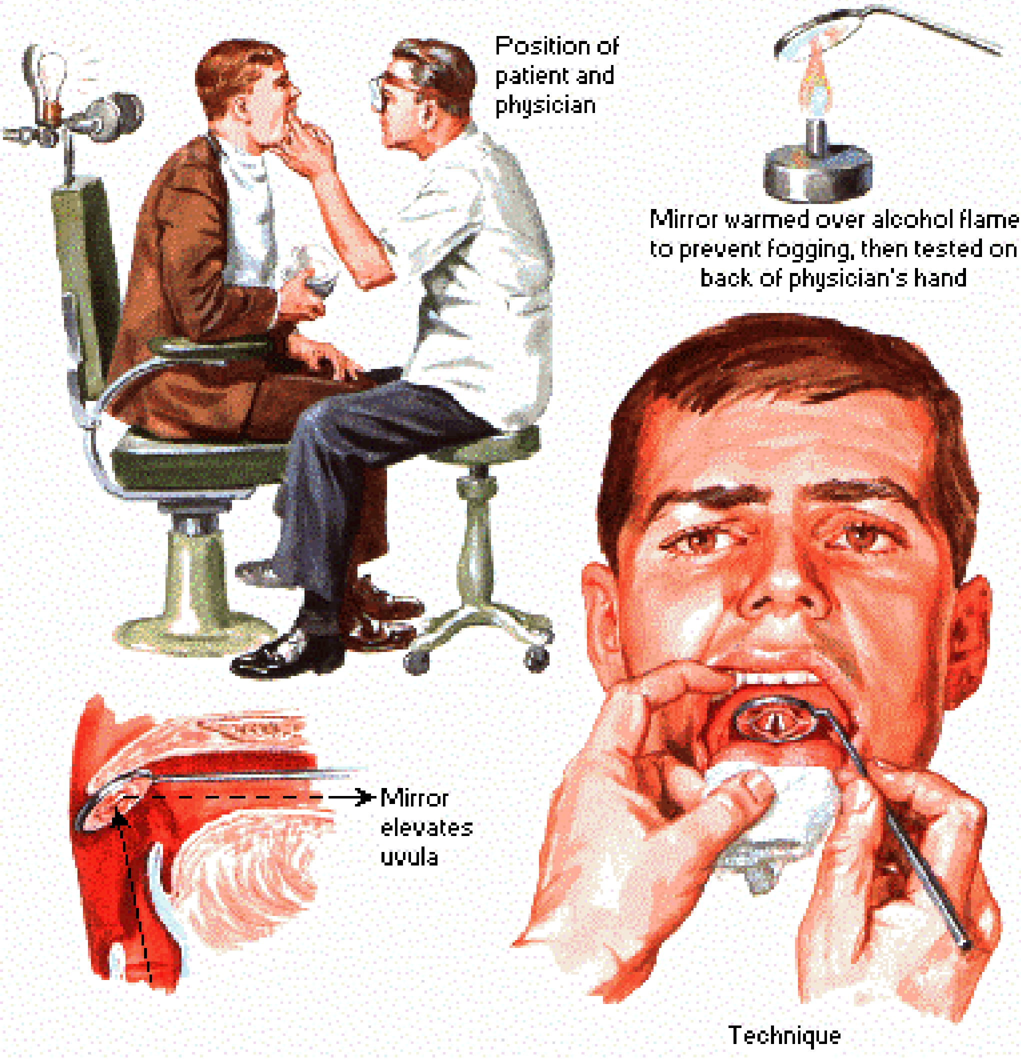


Thyroid cartilage lamina removed

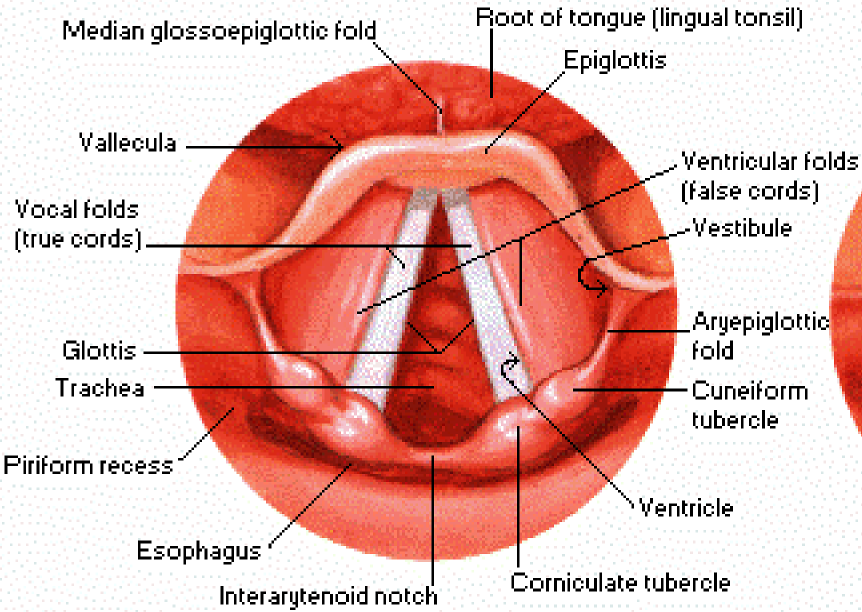
Anterior View



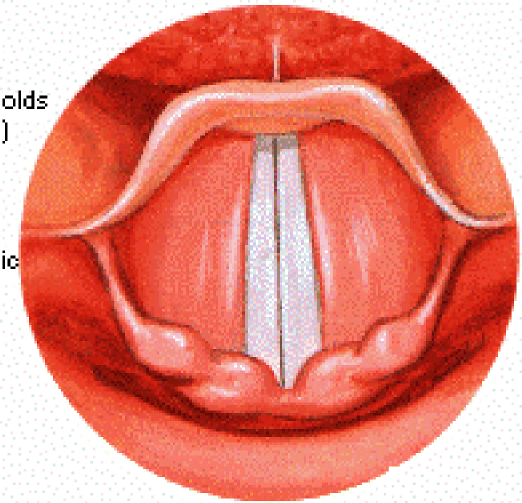
Technique


Position of patient and physician
Mirror warmed over alcohol flame to prevent fogging, then tested on back of physician's hand
Mirror elevates uvula
Technique

Views during Inspiration and Phonation

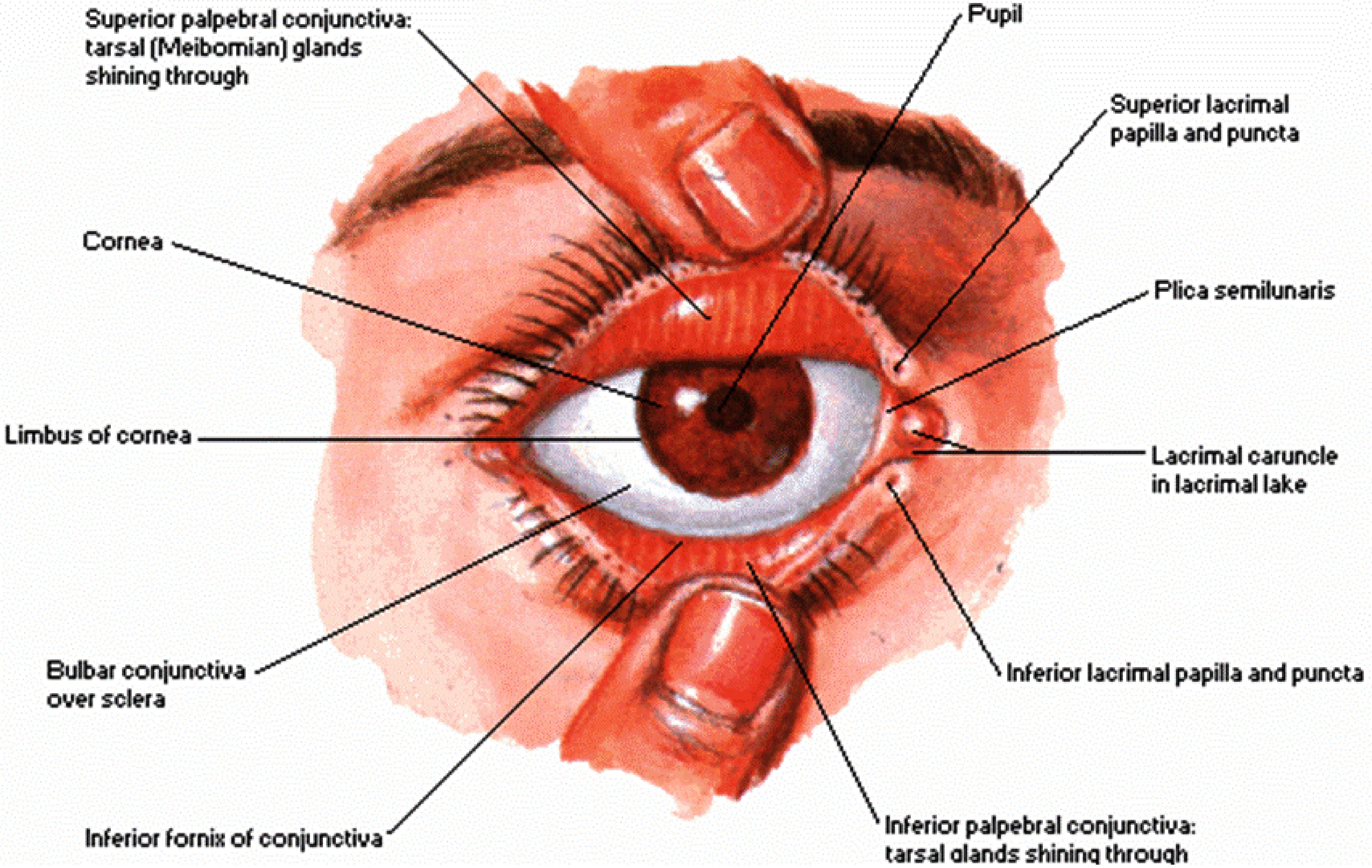


Normal larynx: inspiration

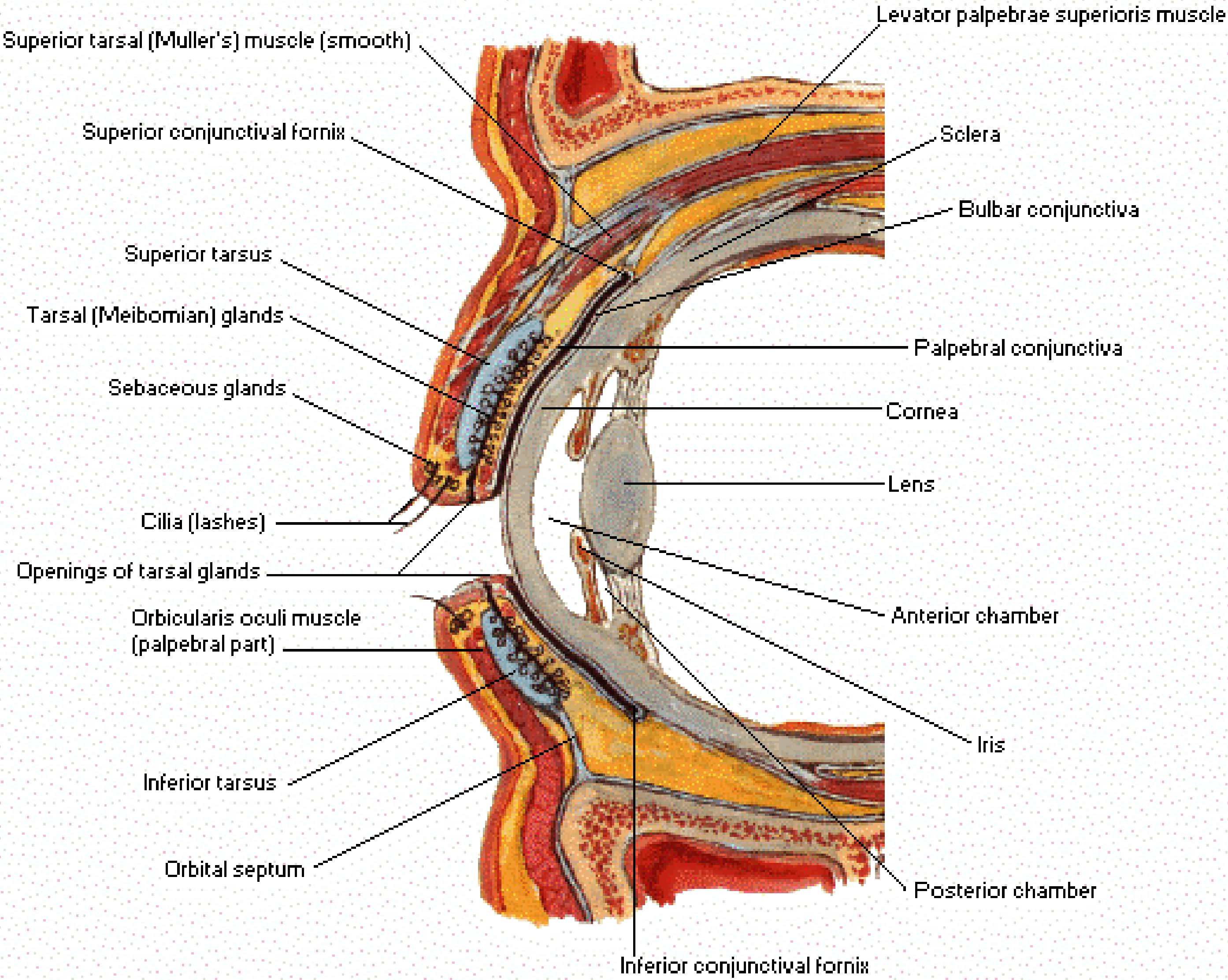


Normal larynx: phonation

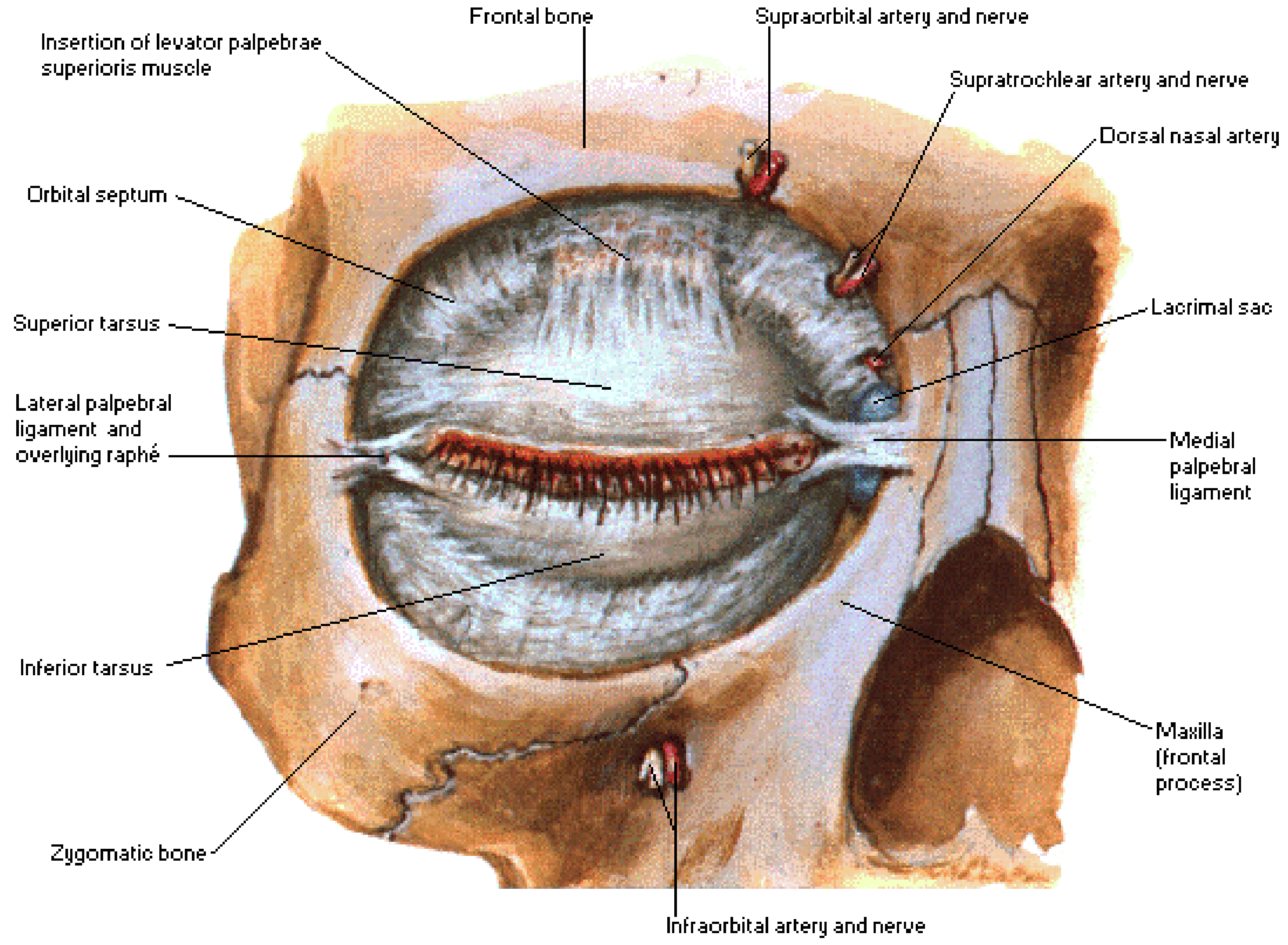
Anterior View

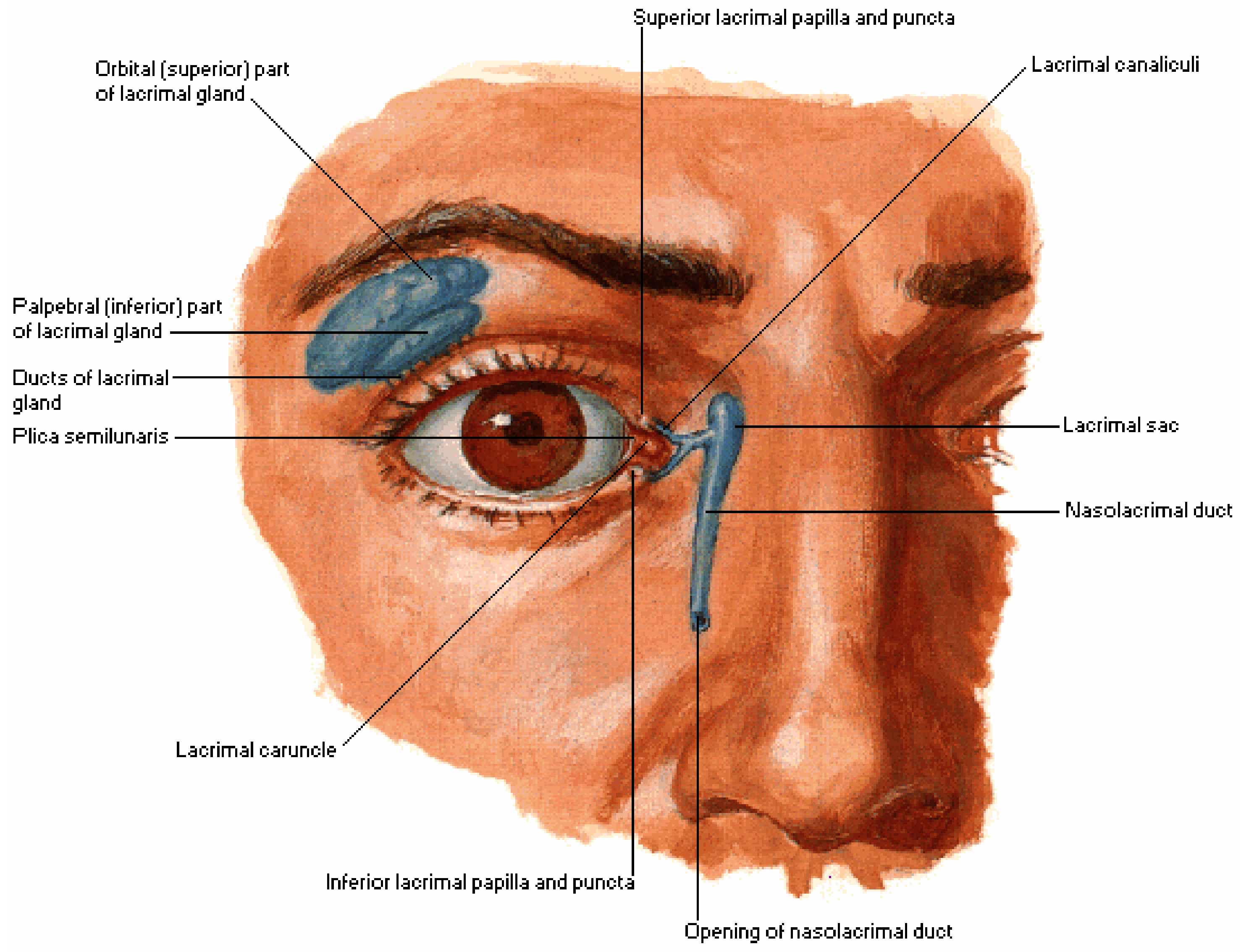


Sagittal Section



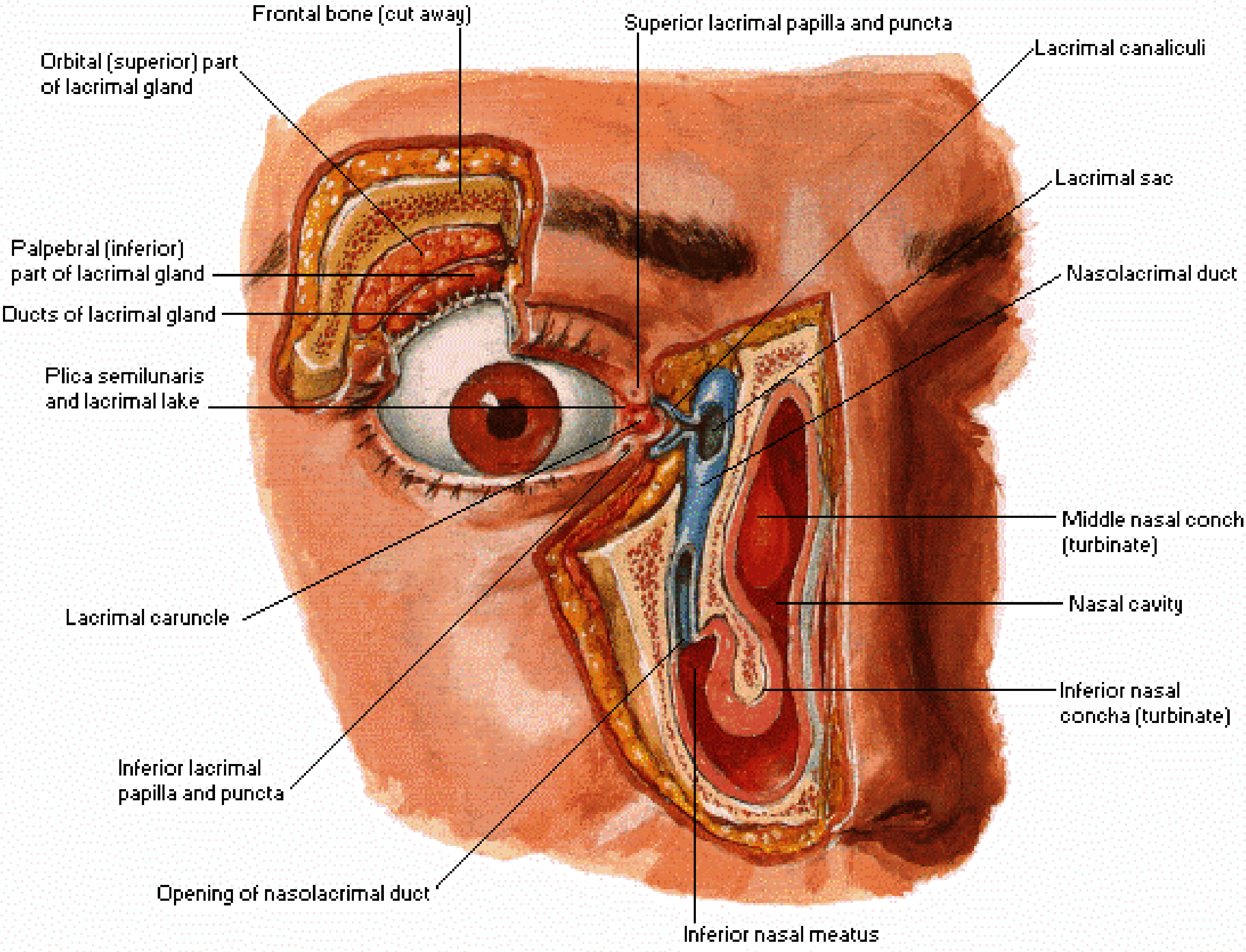
Anterior View





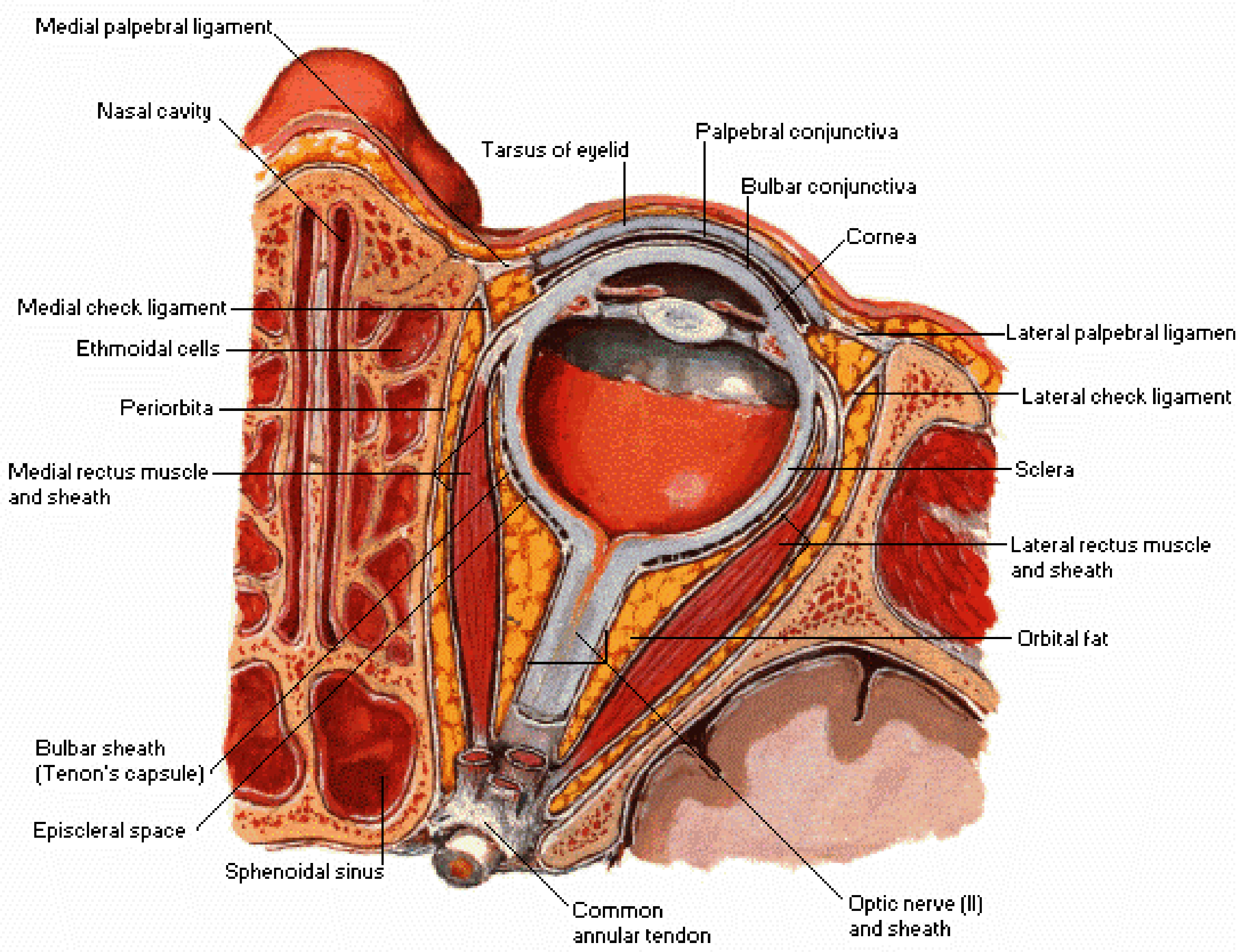
Superior lacrimal papilla and puncta
Orbital (superior) part
of lacrimal gland
Lacrimal canaliculi
Palpebral (inferior) part
of lacrimal gland
Ducts of lacrimal
gland
Plica semilunaris
Lacrimal sac
Nasolacrimal duct
Lacrimal caruncle
Inferior lacrimal papilla and puncta
Opening of nasolacrimal duct

Dissection

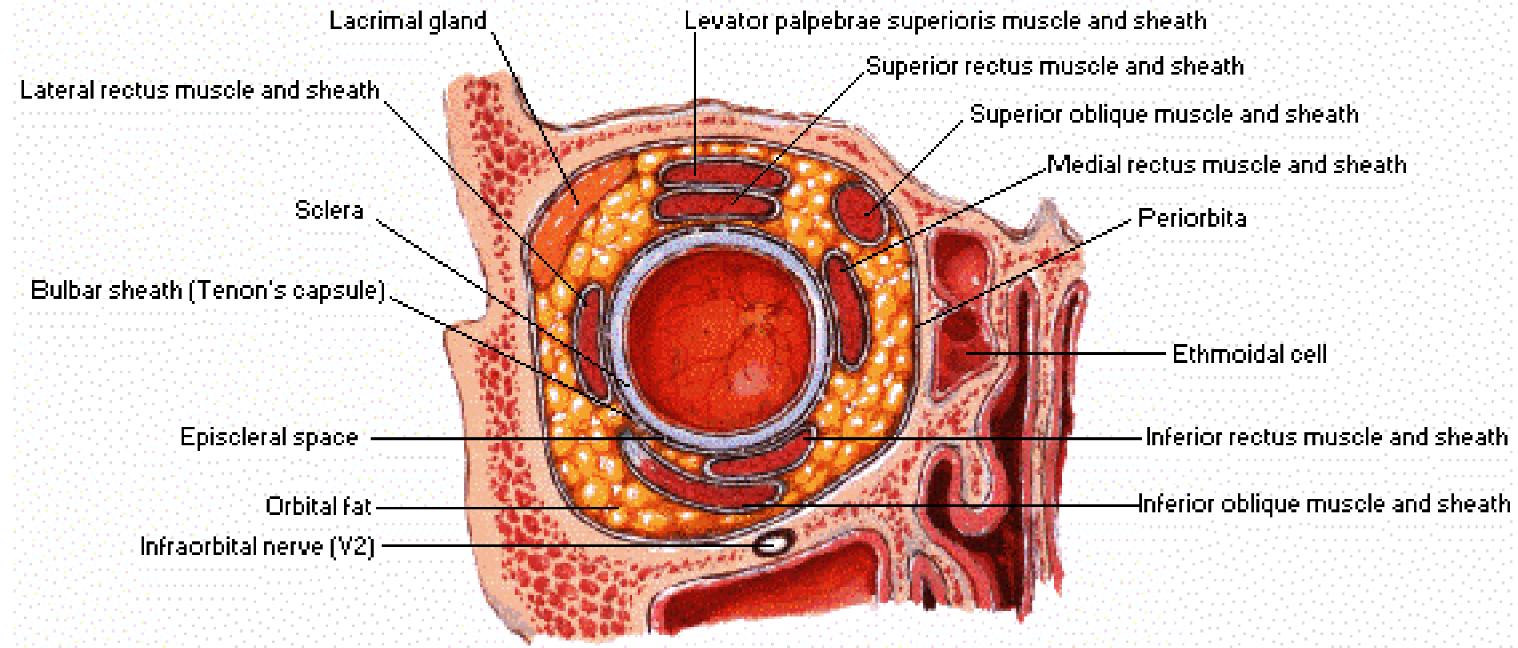


Frontal bone (cut away)
Superior lacrimal papilla and puncta
Lacrimal canaliculi
Orbital (superior) part of lacrimal gland
Lacrimal sac
Palpebral (inferior) part of lacrimal gland
Nasolacrimal duct
Ducts of lacrimal gland
Plica semilunaris and lacrimal lake
Middle nasal conch (turbinate)
Nasal cavity
Lacrimal caruncle
Inferior nasal concha (turbinate)
Inferior lacrimal papilla and puncta
Opening of nasolacrimal duct
Inferior nasal meatus

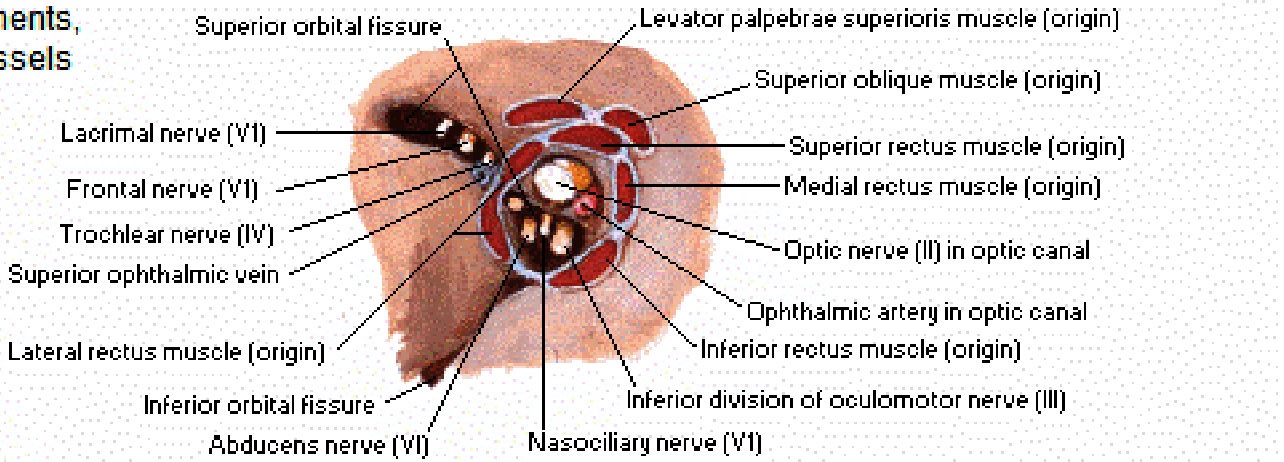
Horizontal Section



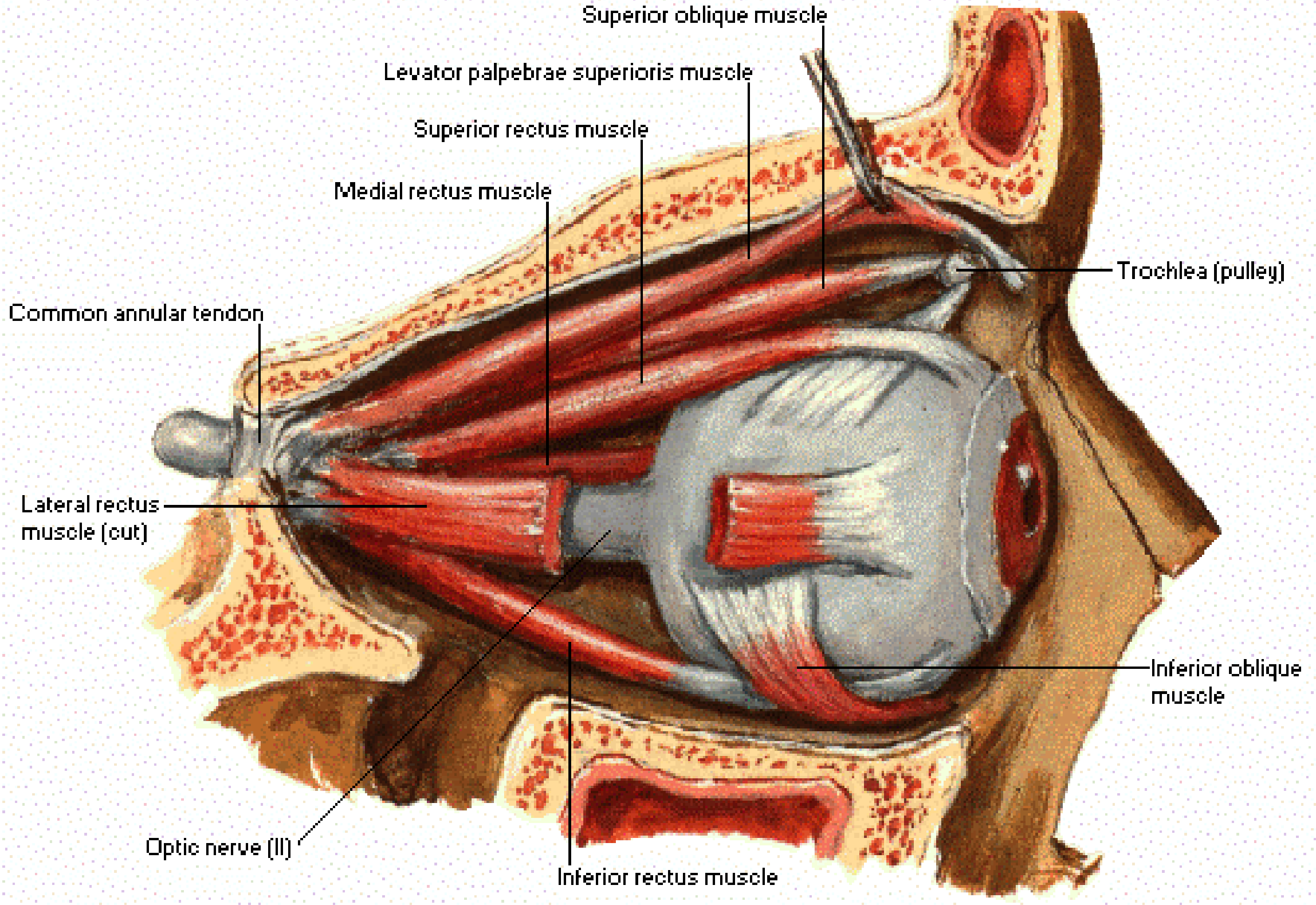
Frontal Section and Entering Structures



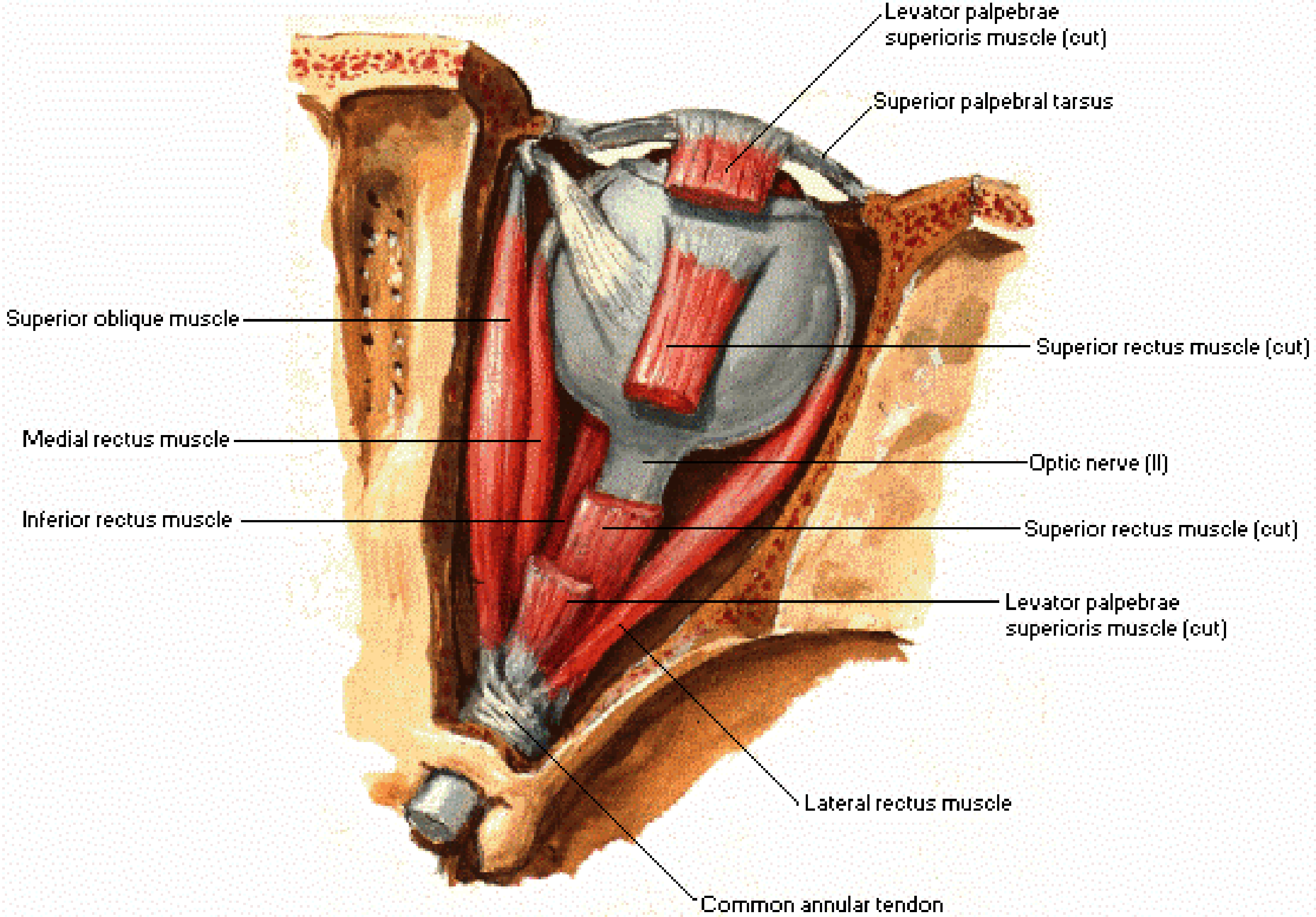
Muscle attachments, nerves and vessels entering orbit



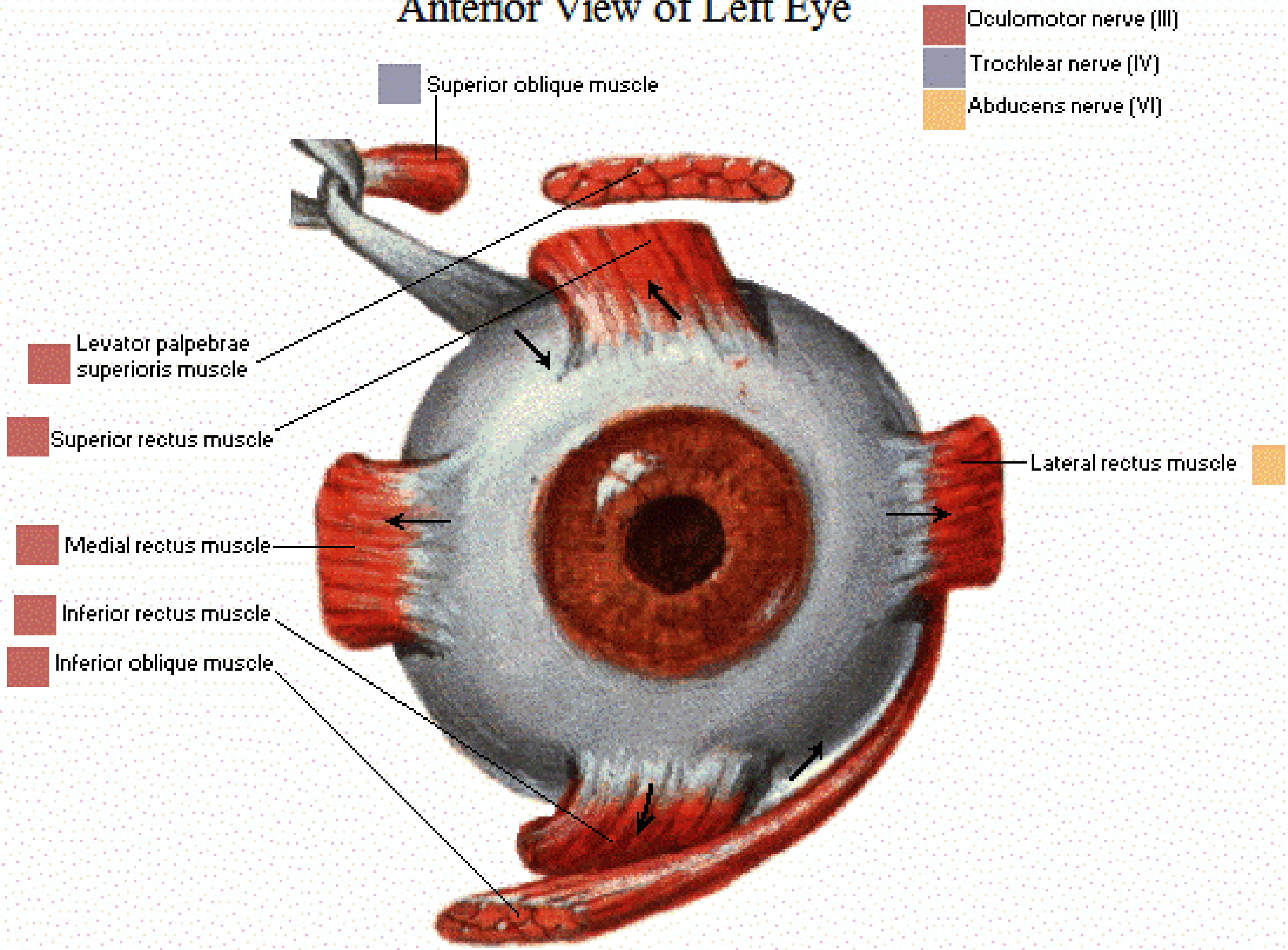
Right Lateral View



Superior View

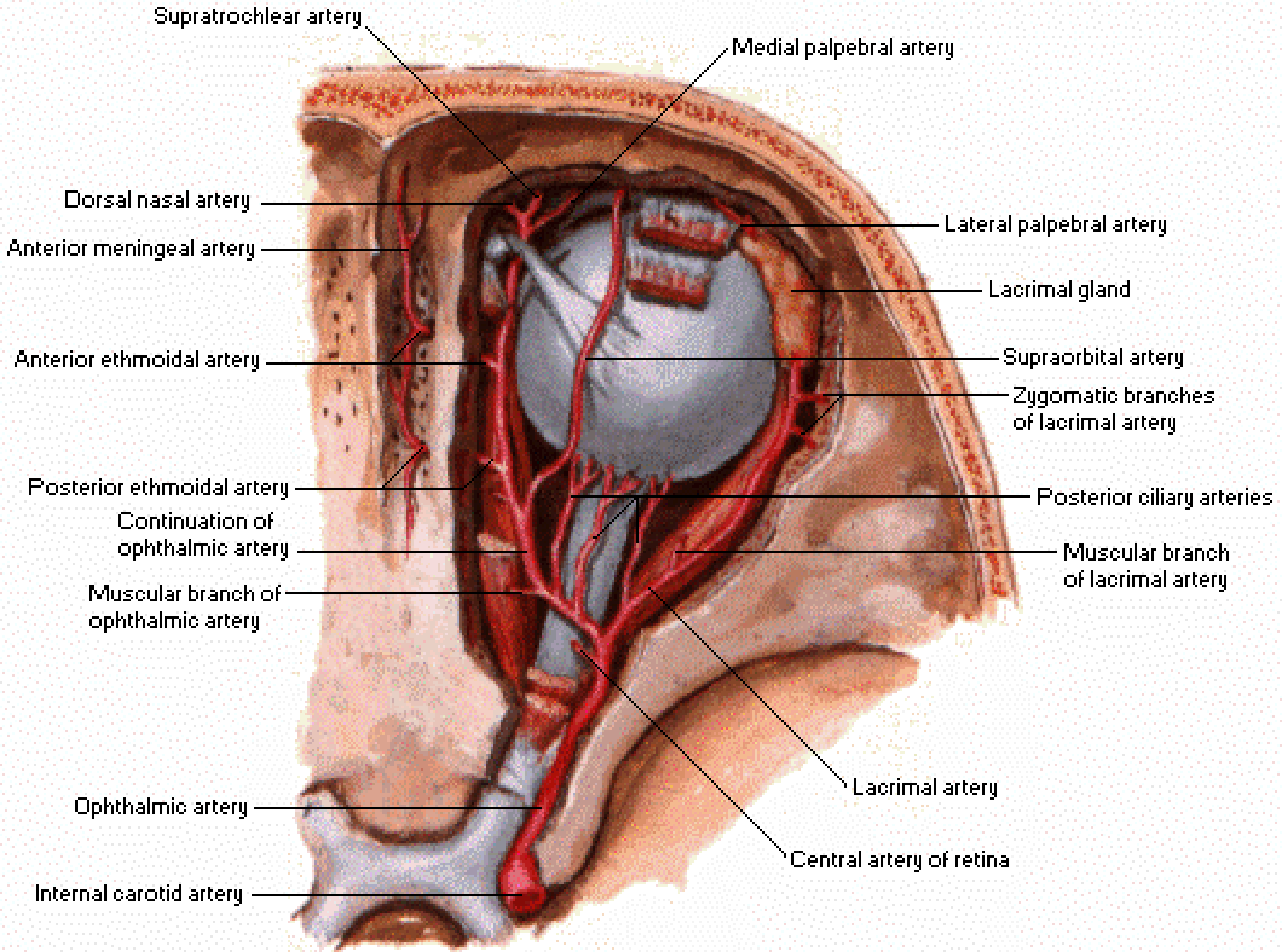


Anterior View of Left Eye

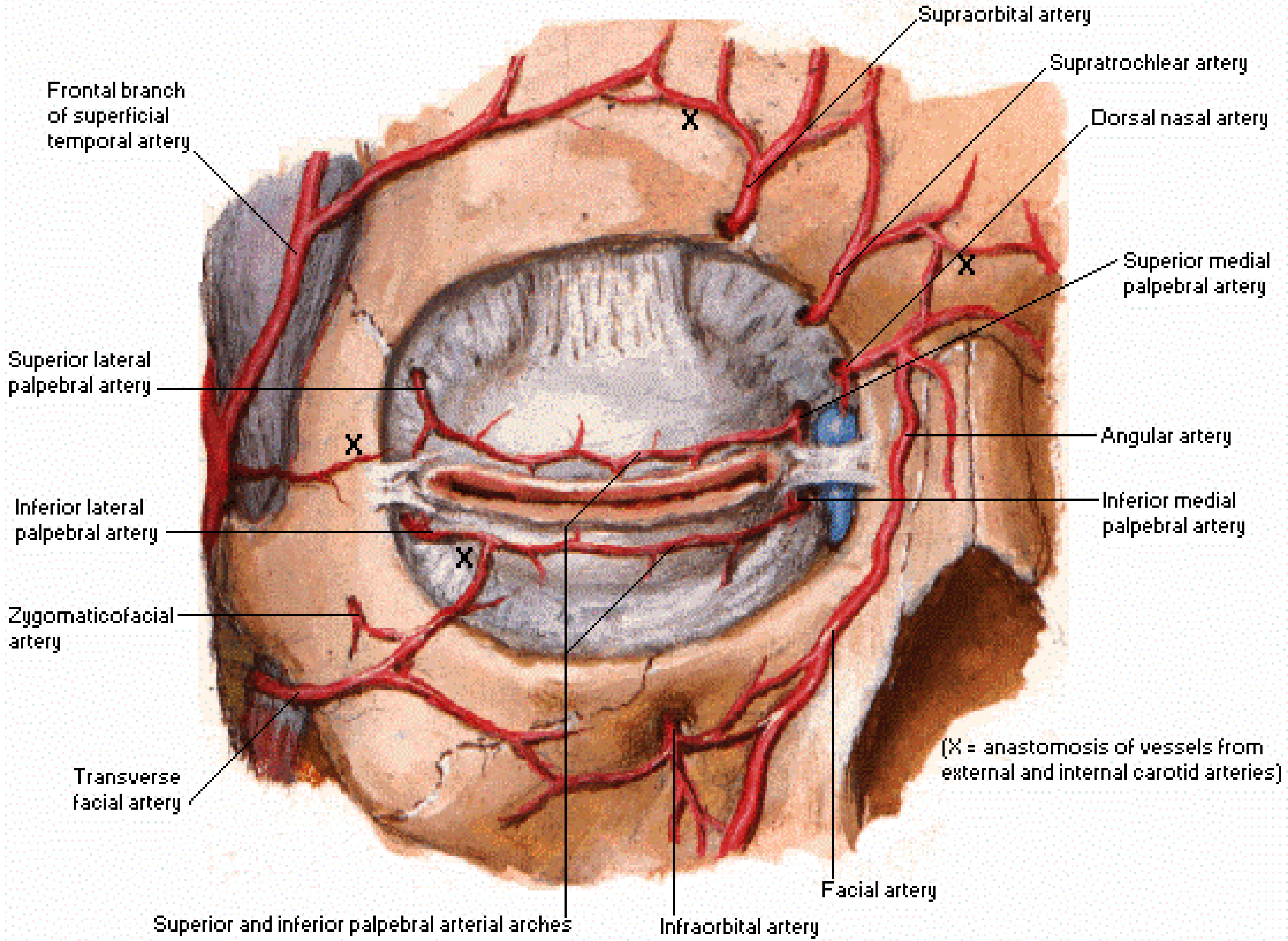


Note: arrows indicate direction of eye movement produced by each muscle

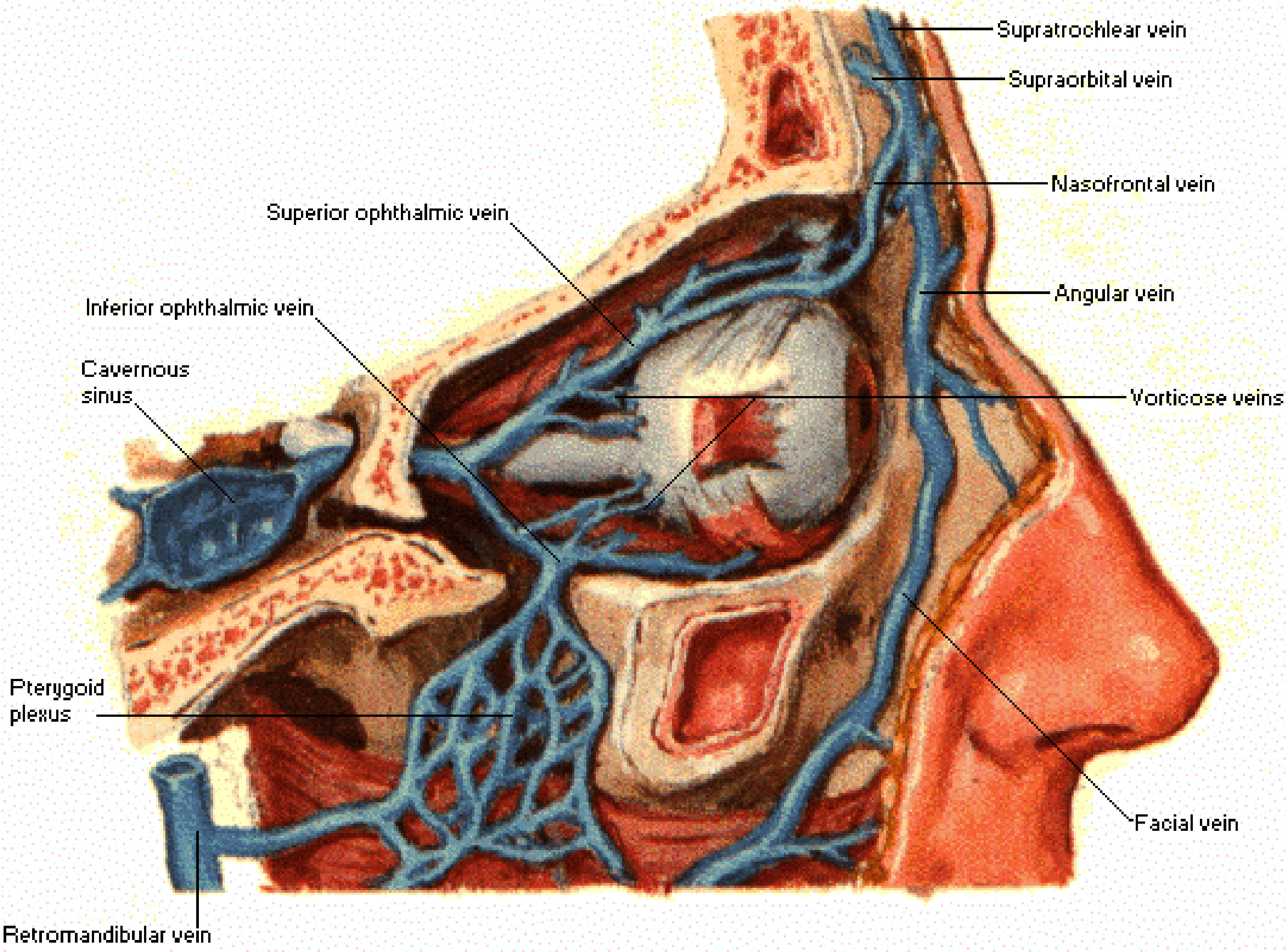
Superior View

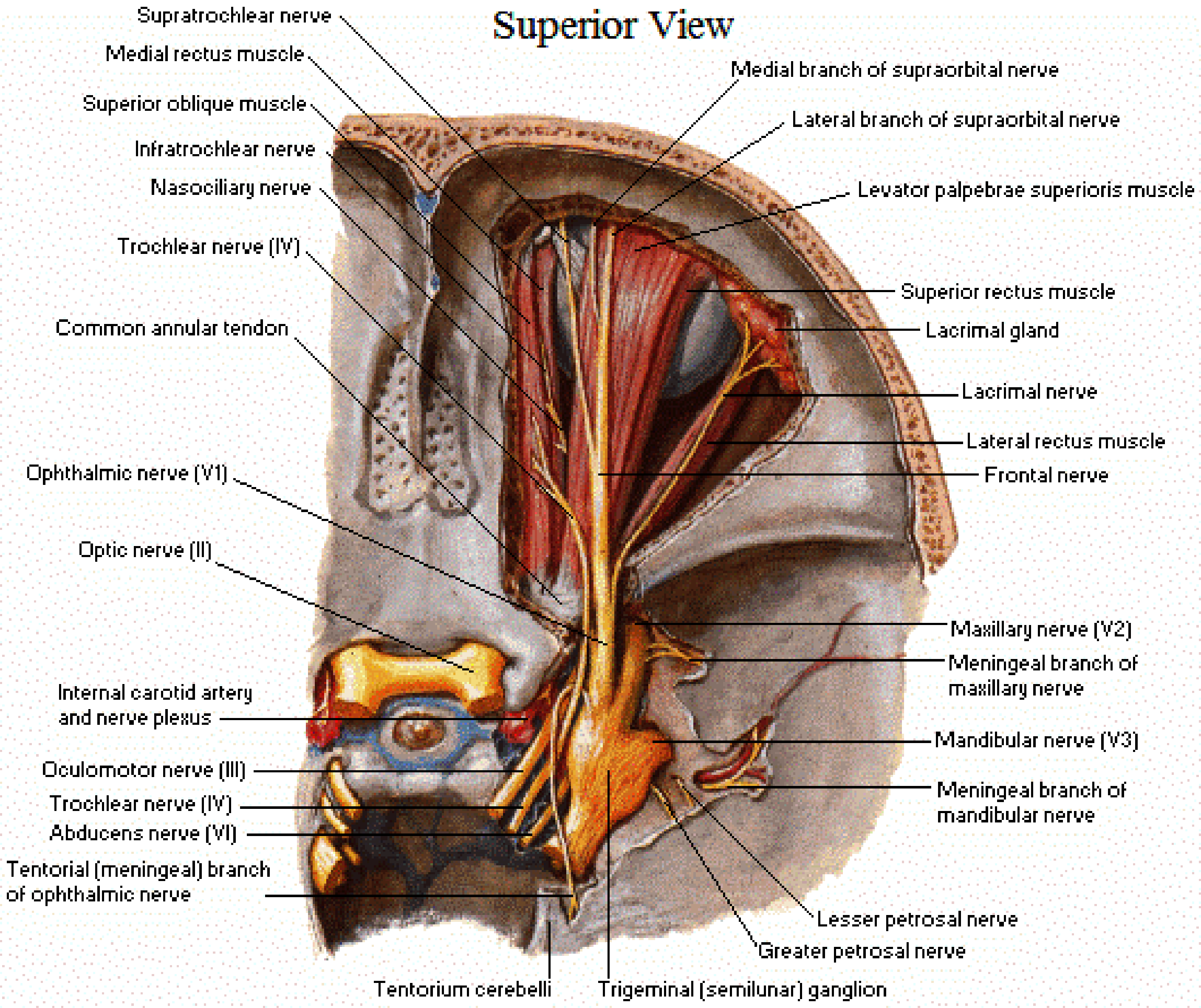


Anterior View

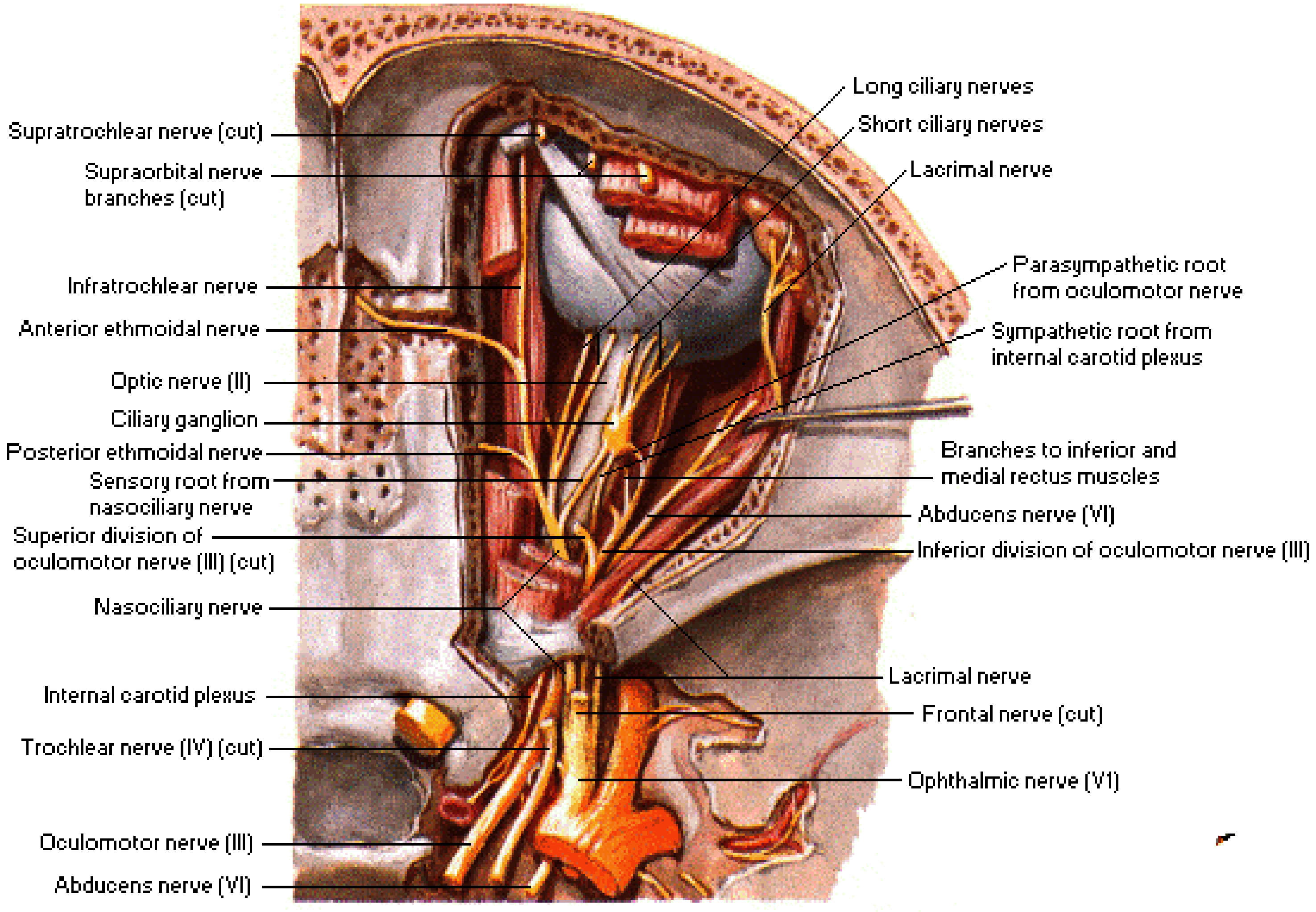


Lateral View



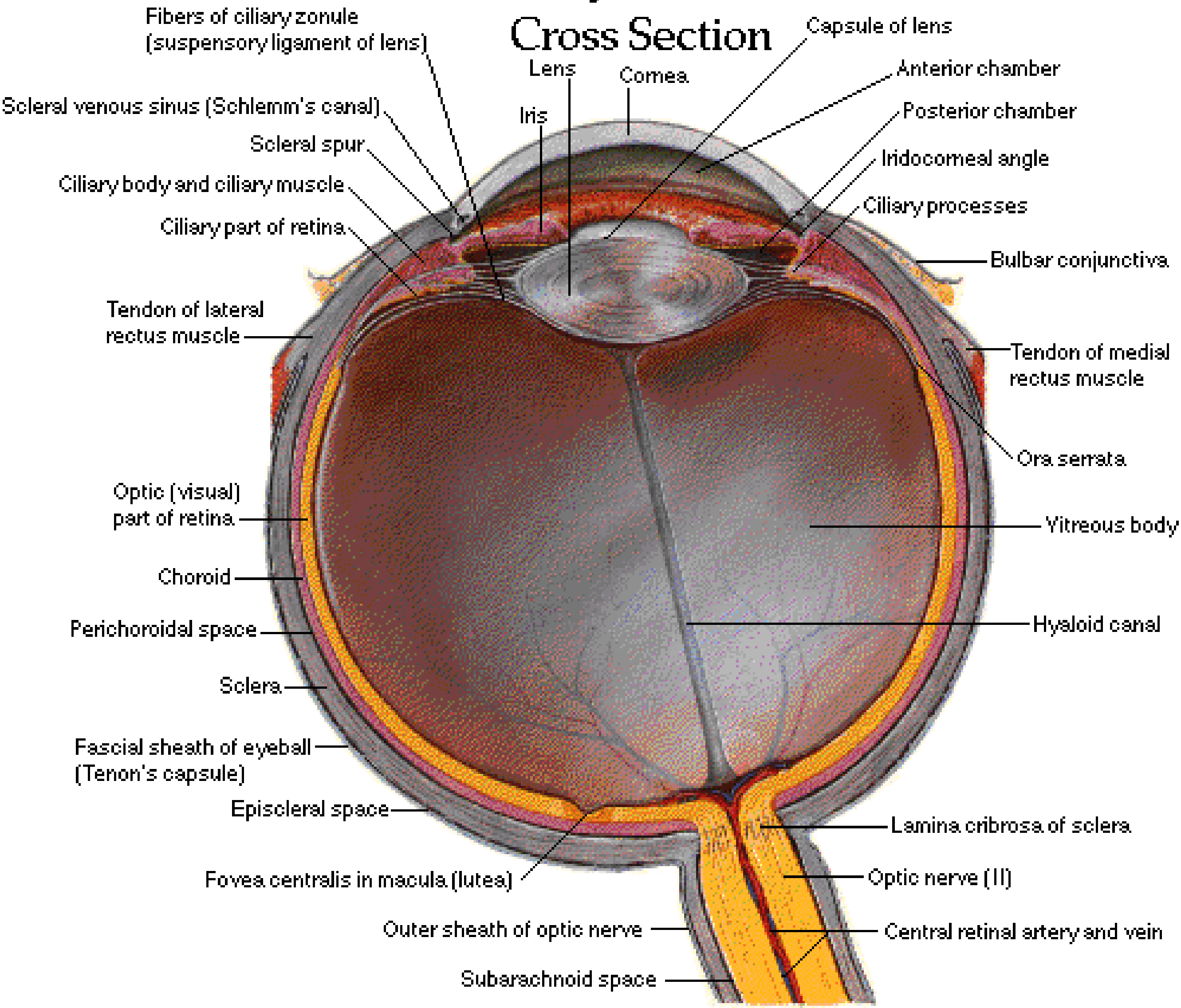

Superior View
Supratrochlear nerve
Medial rectus muscle
Superior oblique muscle
Infratrochlear nerve
Nasociliary nerve
Trochlear nerve (IV)
Common annular tendon
Ophthalmic nerve (V1)
Optic nerve (II)
Internal carotid artery
and nerve plexus
Oculomotor nerve (III)
Trochlear nerve (IV)
Abducens nerve (VI)
Tentorial (meningeal) branch
of ophthalmic nerve
Tentorium cerebelli
Trigeminal (semilunar) ganglion
Medial branch of supraorbital nerve
Lateral branch of supraorbital nerve
Levator palpebrae superioris muscle
Superior rectus muscle
Lacrimal gland
Lacrimal nerve
Lateral rectus muscle
Frontal nerve
Maxillary nerve (V2)
Meningeal branch of
maxillary nerve
Mandibular nerve (V3)
Meningeal branch of
mandibular nerve
Lesser petrosal nerve
Greater petrosal nerve

Superior View



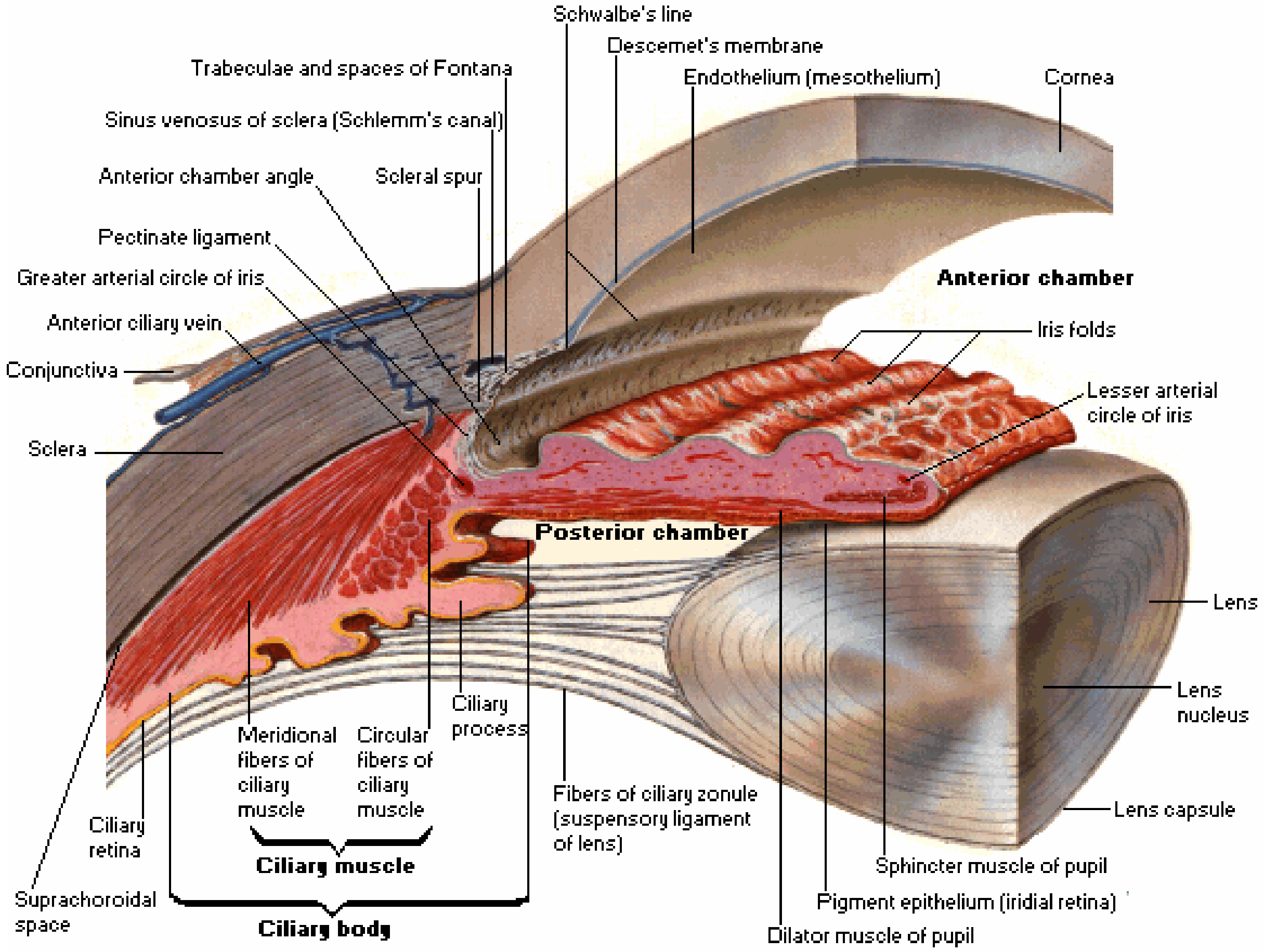
Eyeball

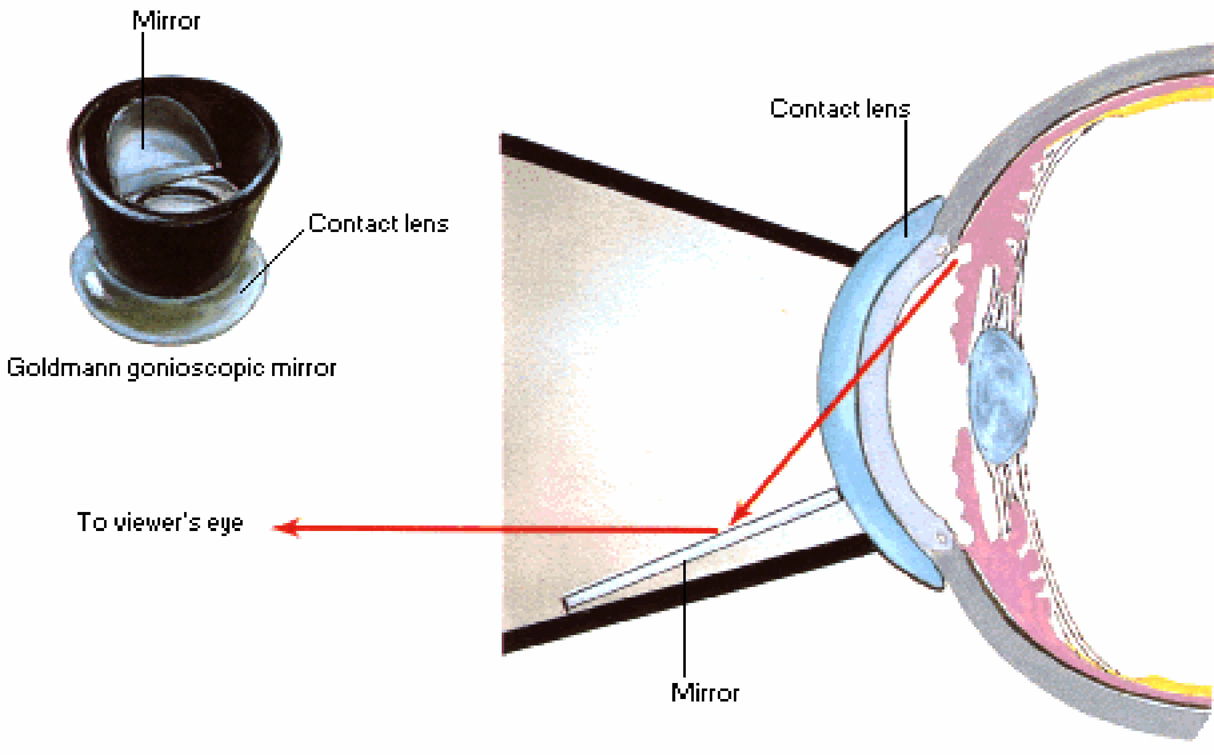
Cross Section



Horizontal section

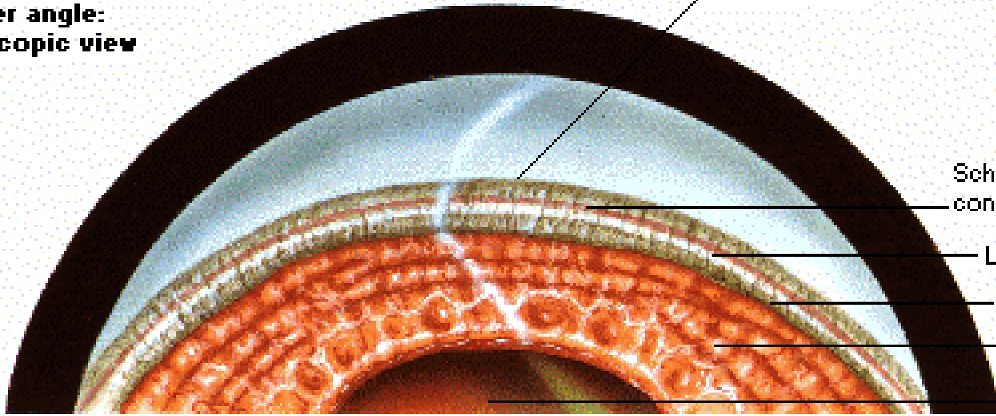
Note: for clarity only single plane of zonular fibers shown; actually fibers surround entire circumference of lens



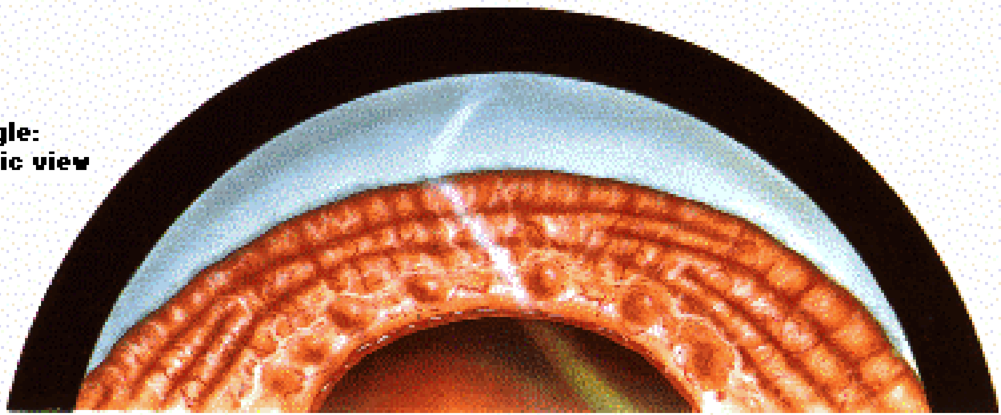

Mirror
Contact lens
Goldmann gonioscopic mirror
Contact lens
To viewer's eye
Mirror

Gonioscopic Views

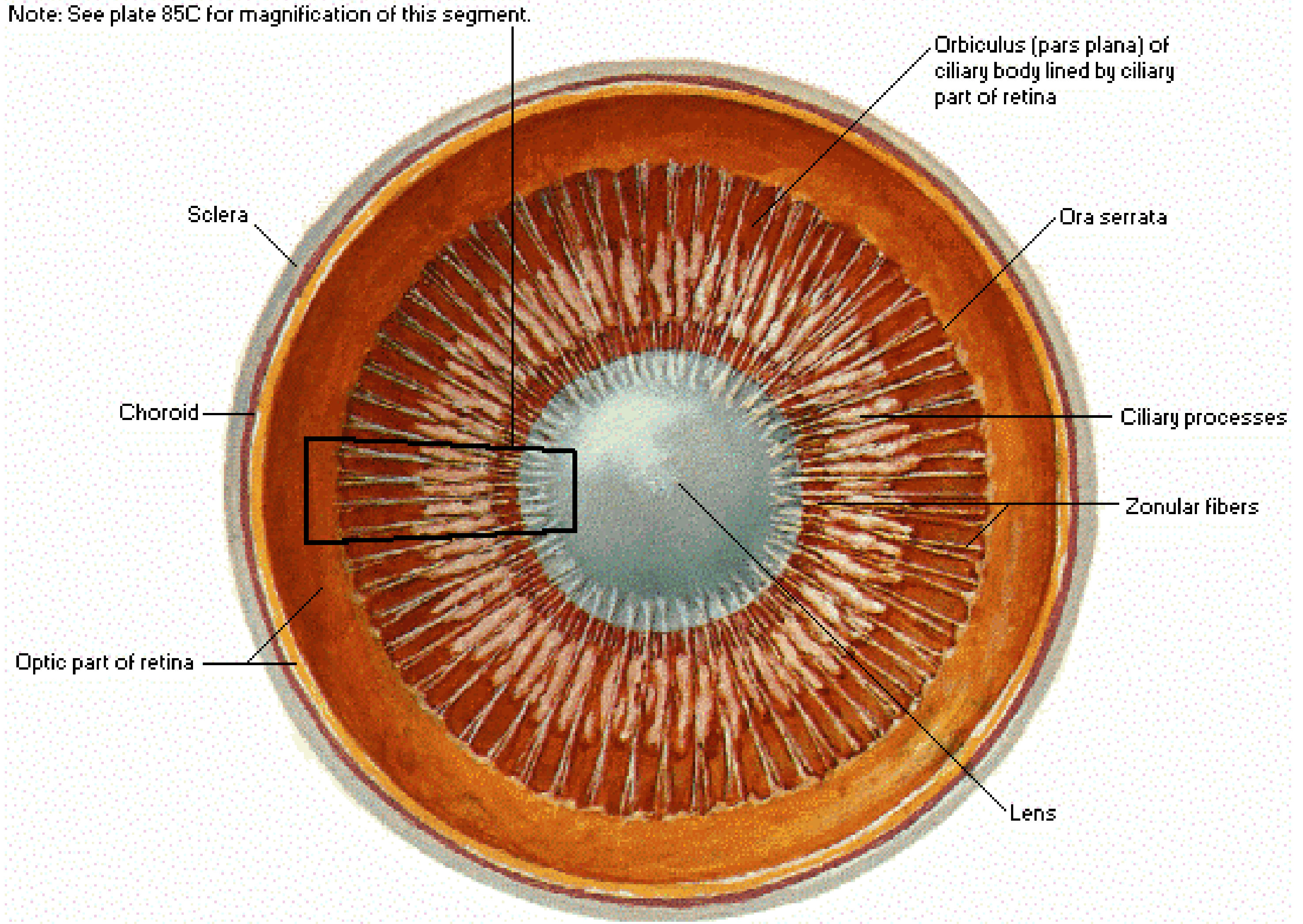
Open (normal) anterior chamber angle: gonioscopic view



Closed angle: gonioscopic view

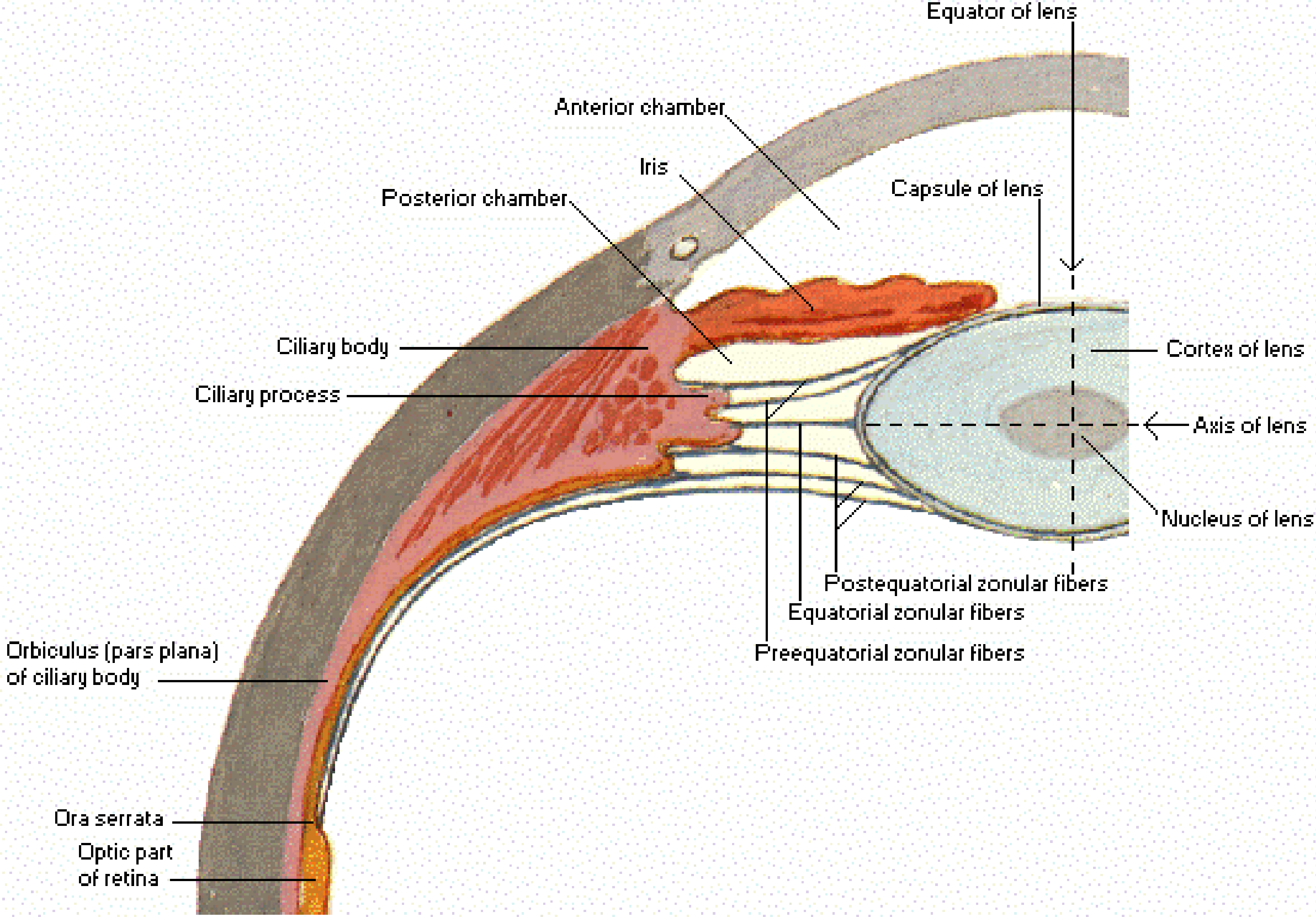


Section in Frontal Plane

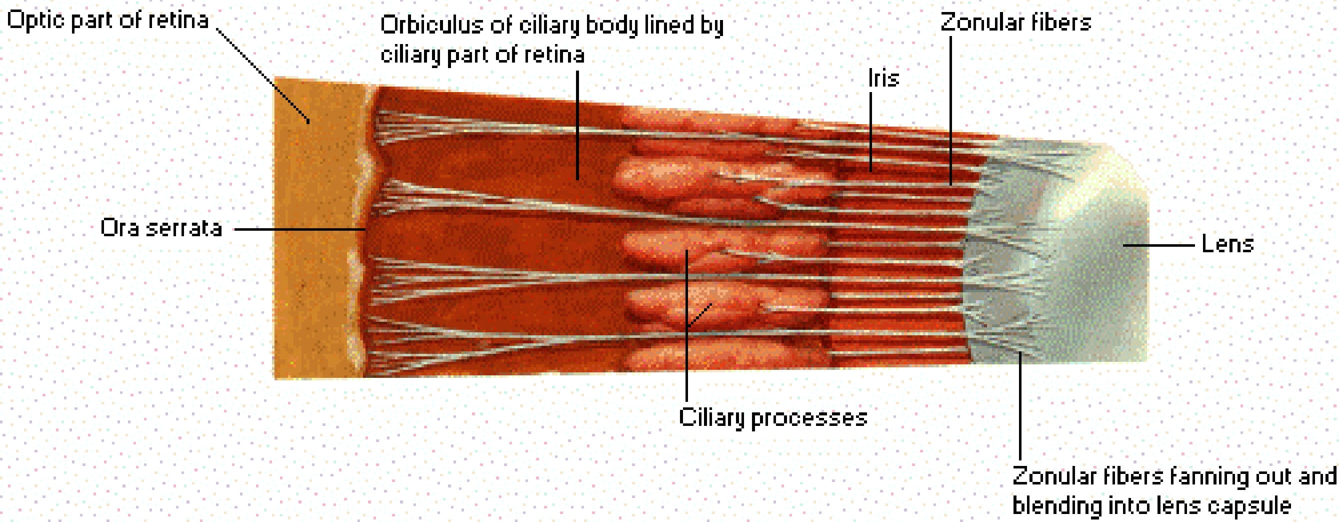


Bulb of eye: anterior segment viewed from behind

Horizontal Section

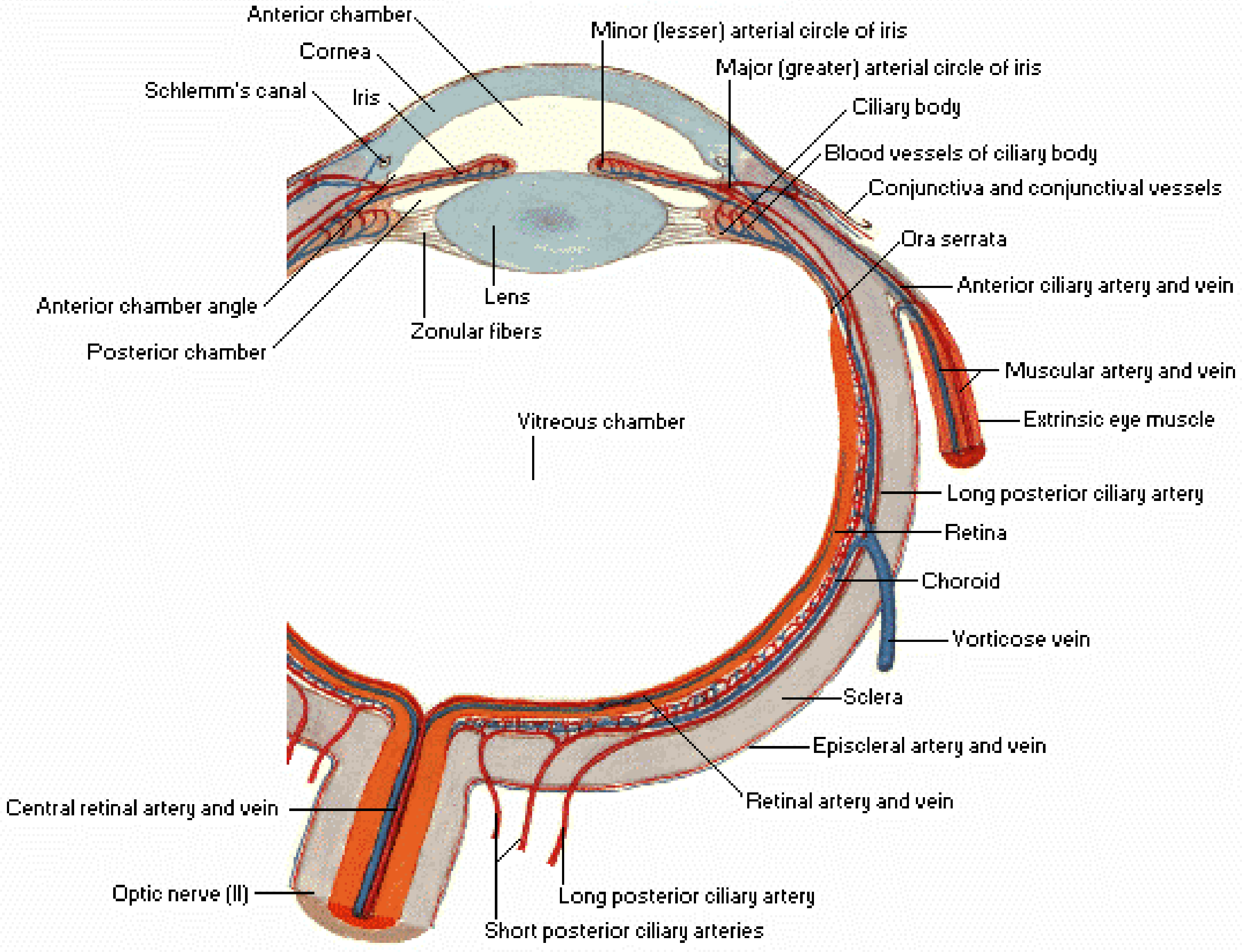


Segment Outlined in Plate 85A

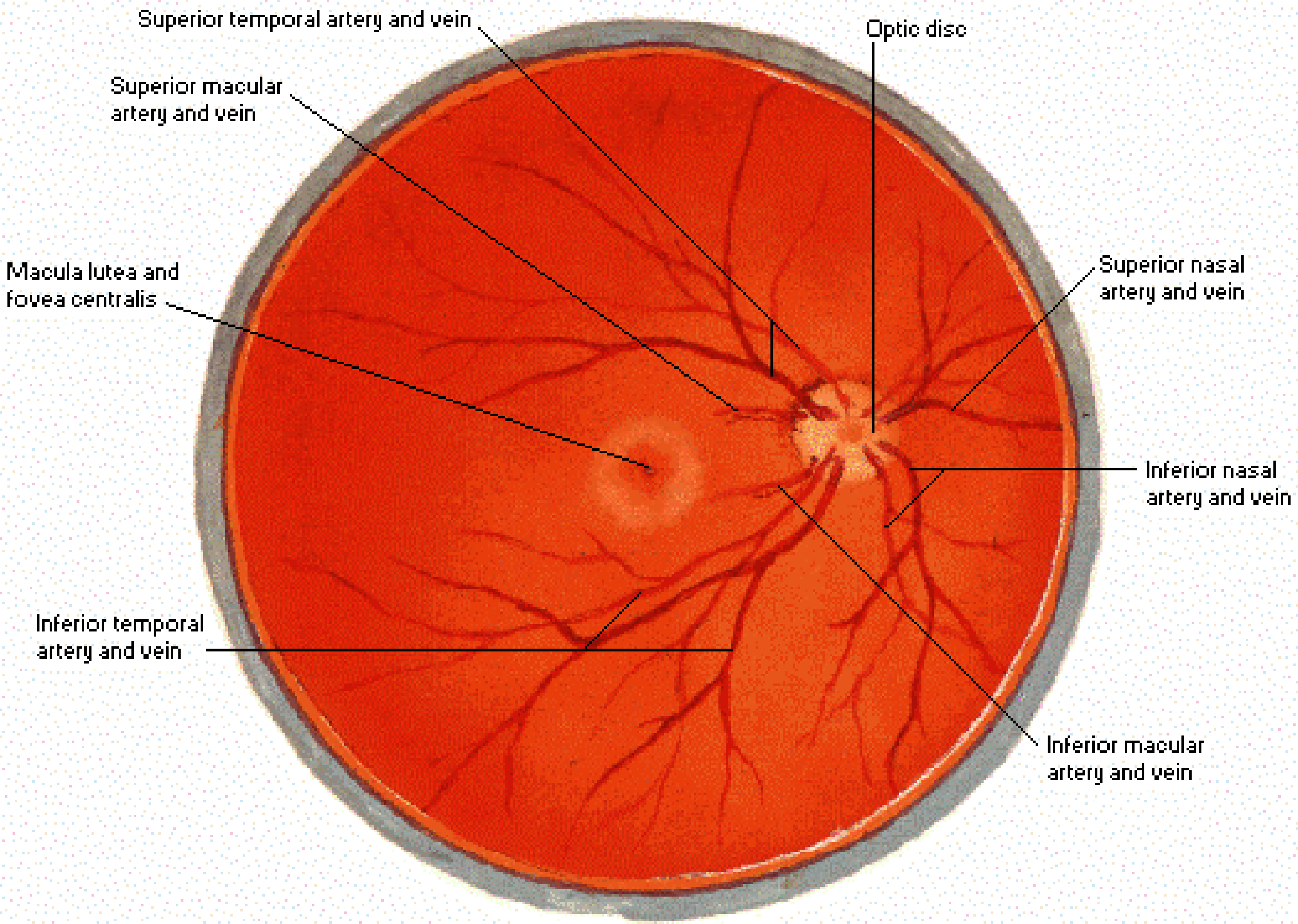


Magnified to ultramicroscopic scale (semischematic)

Horizontal Section

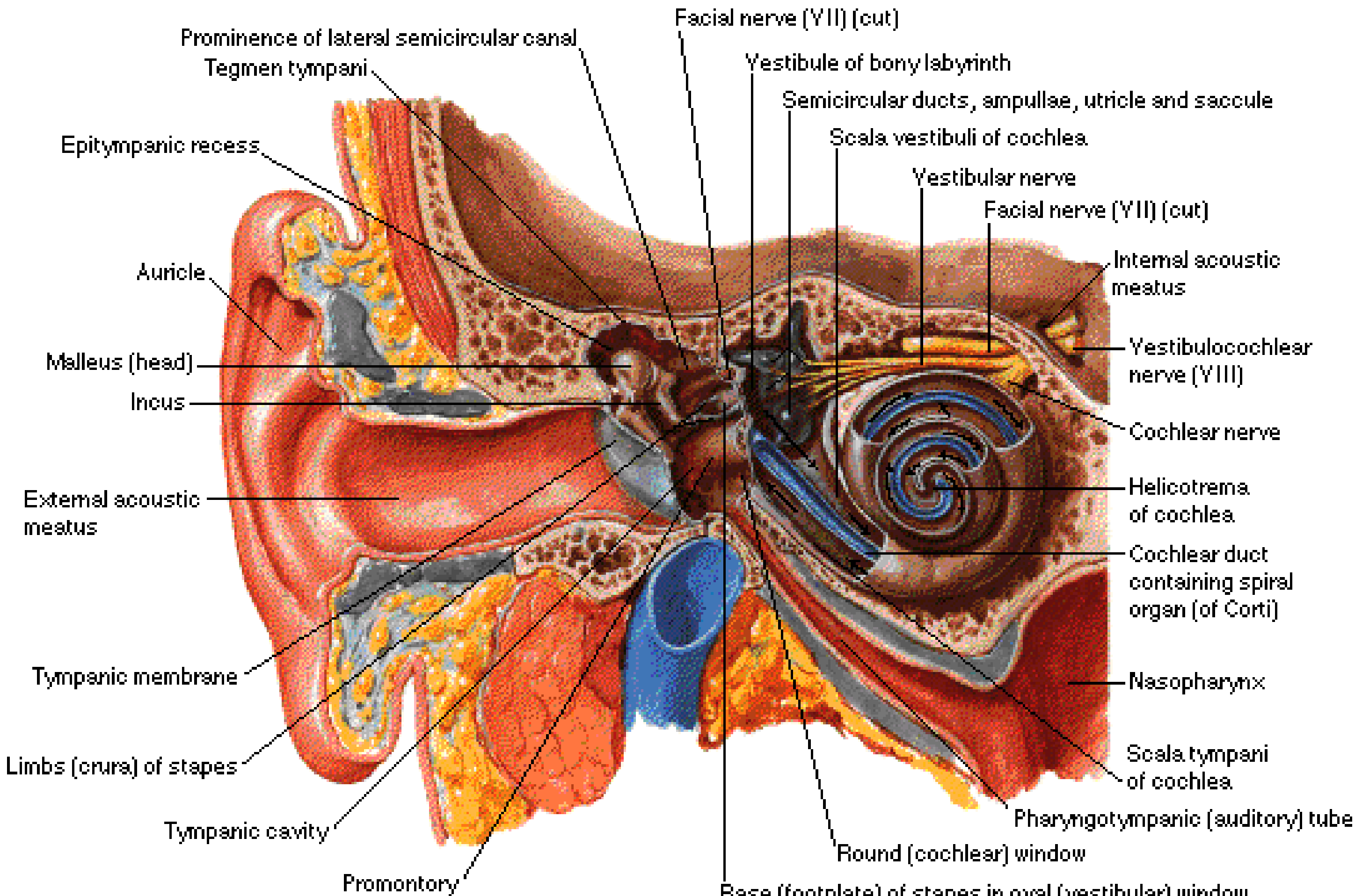


Ophthalmoscopic View



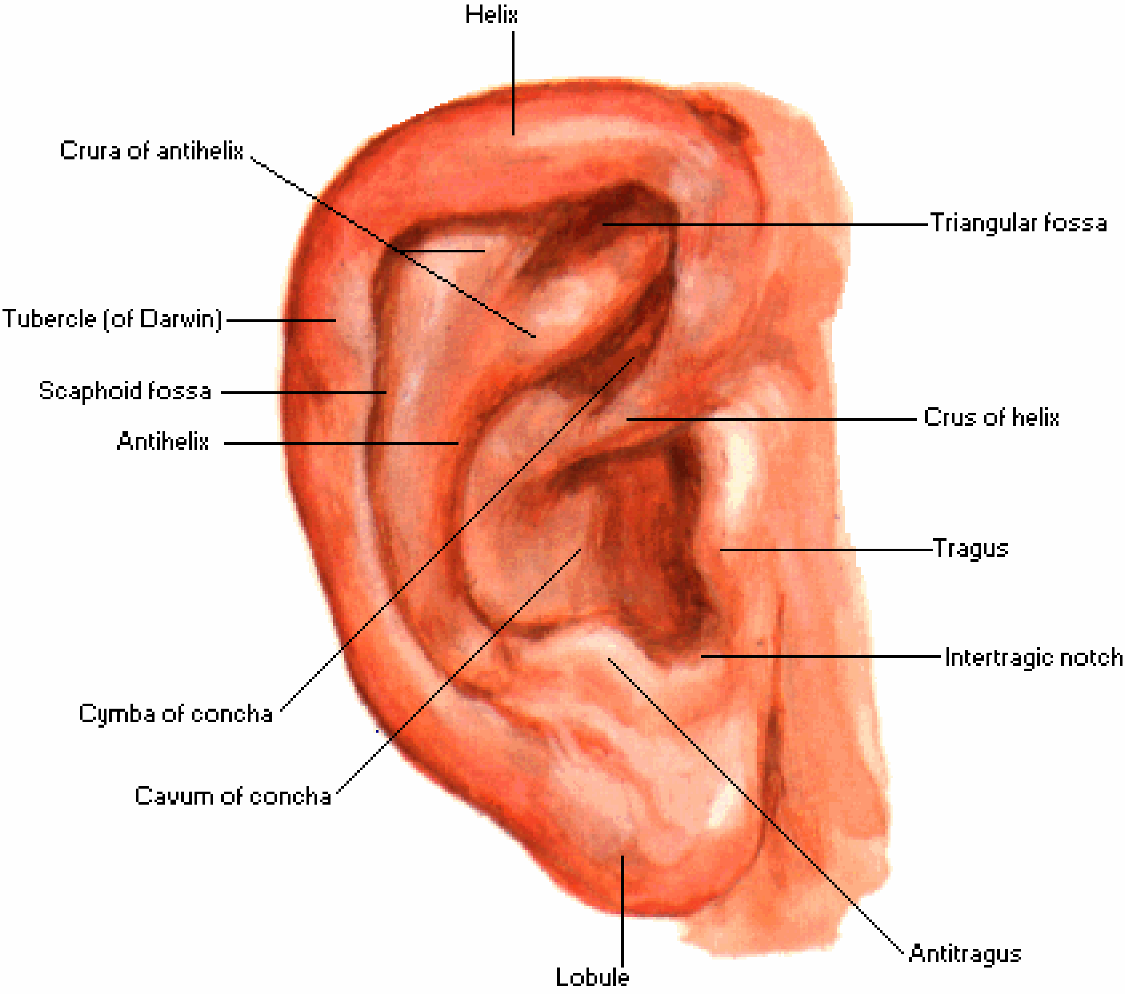
Right retinal vessels

Pathway of Sound Reception

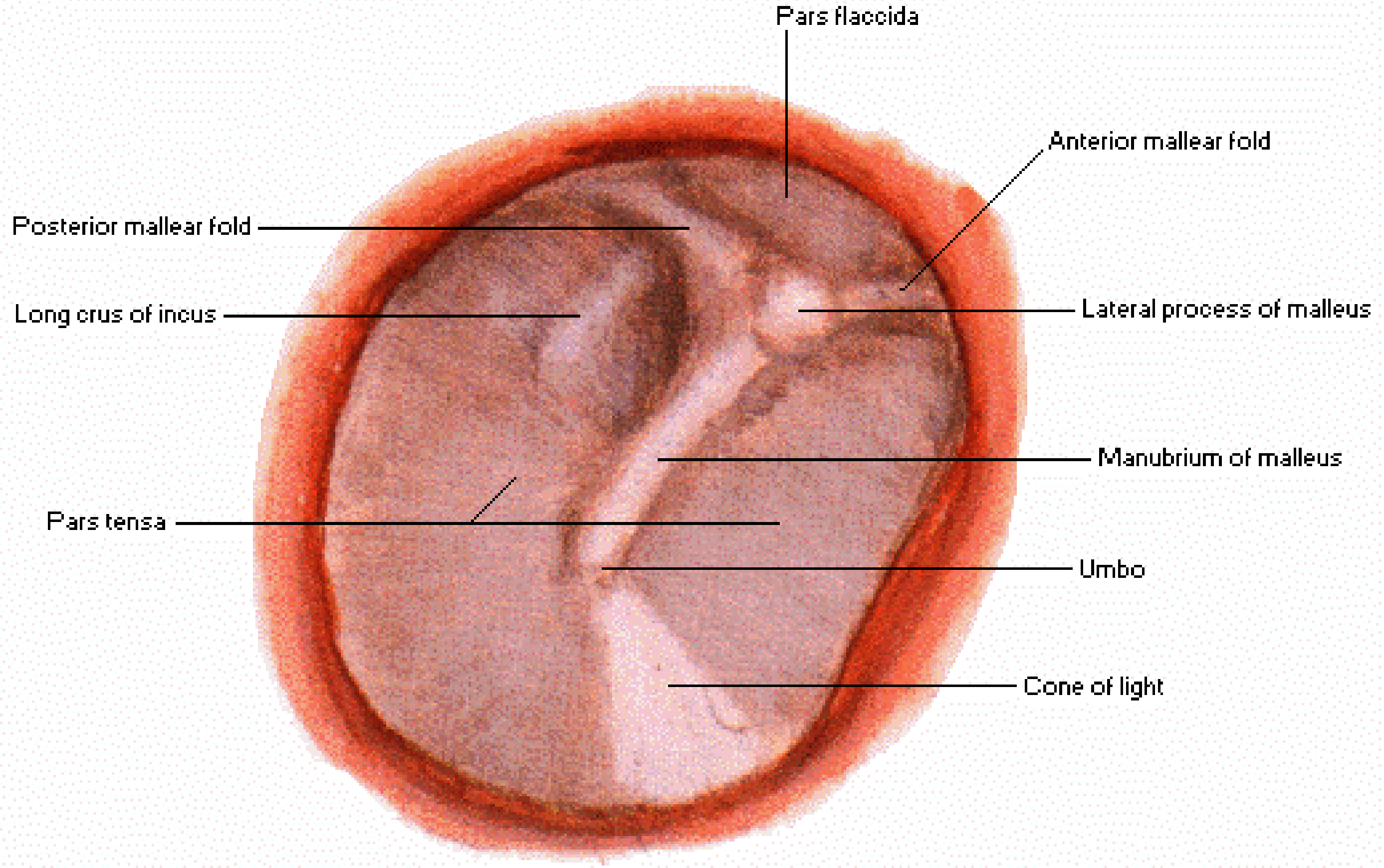


Note: arrows indicate course of sound waves

Schematic frontal section

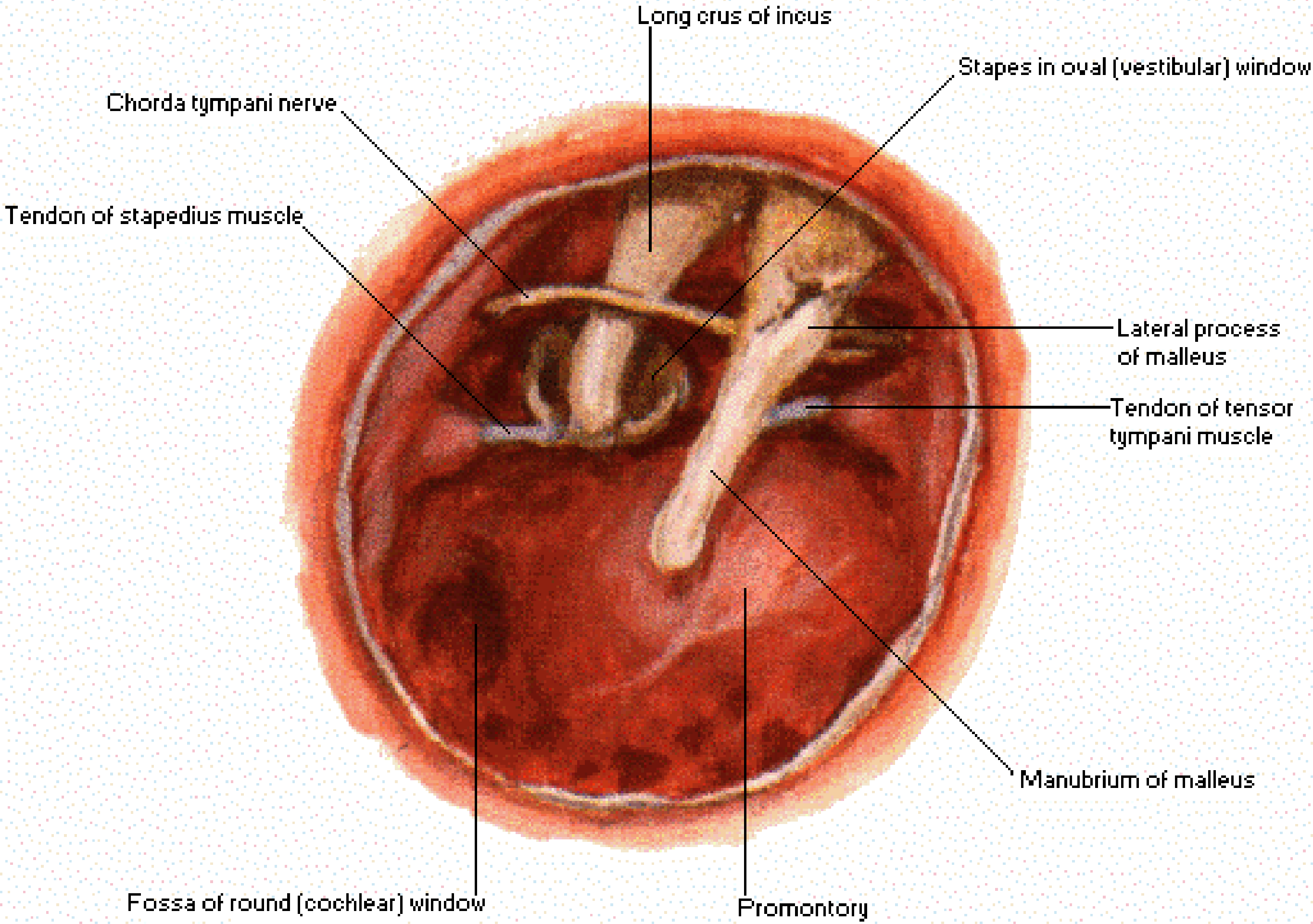

Helix
Crura of antihelix
Triangular fossa
Tubercle (of Darwin)
Scaphoid fossa
Crus of helix
Antihelix
Tragus
Intertragic notch
Cymba of concha
Cavum of concha
Antitragus
Lobule

Right Tympanic Membrane



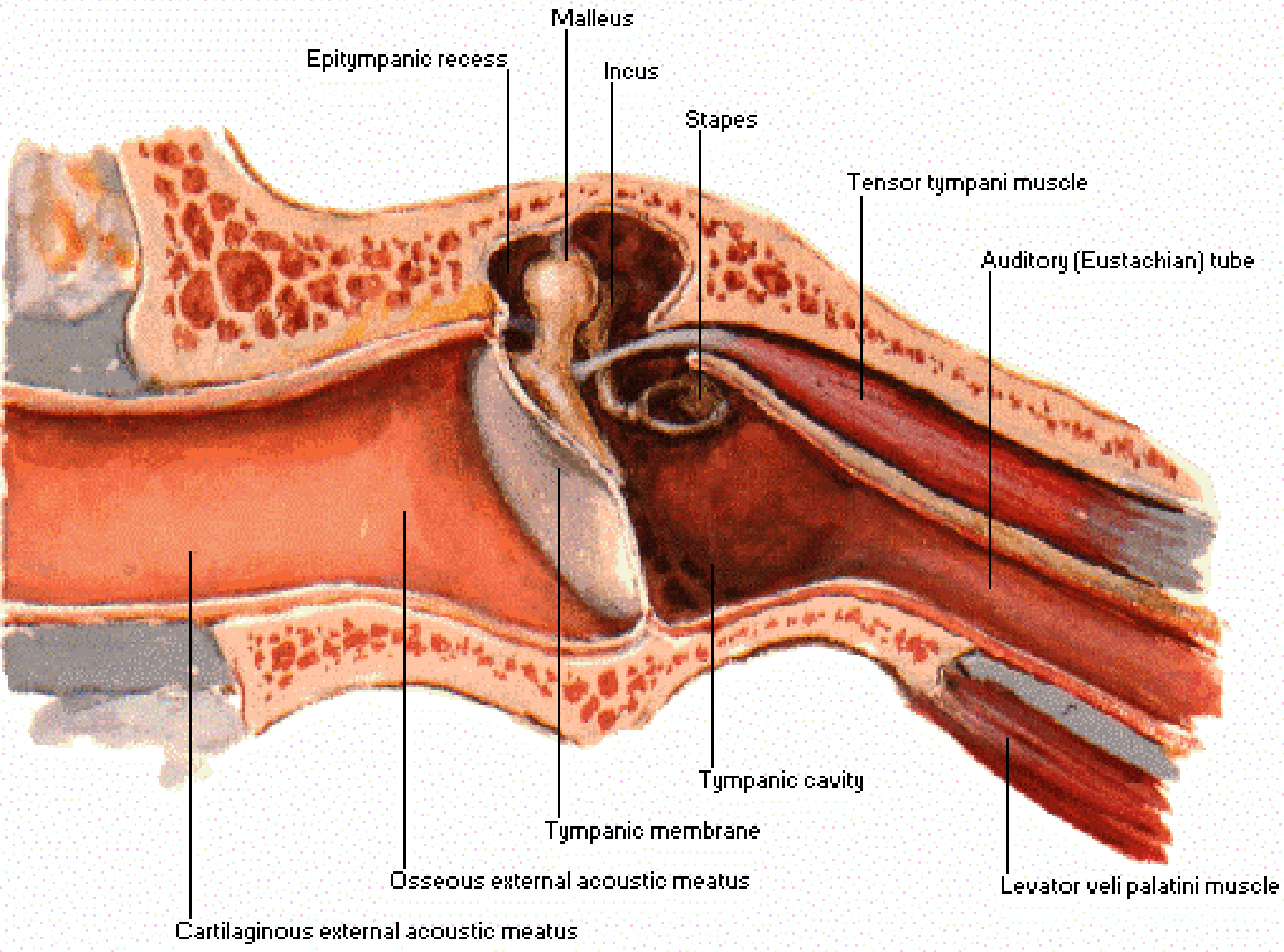
Viewed through speculum

Viewed from External Acoustic Meatus

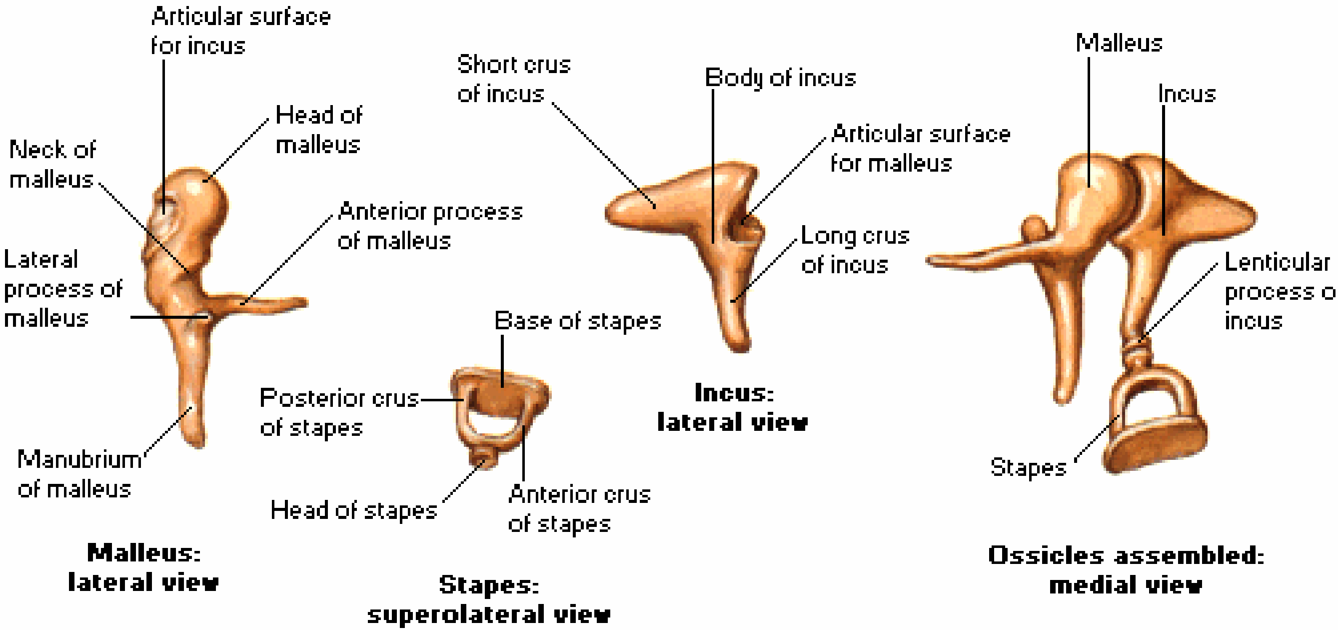


Tympanic Membrane Removed

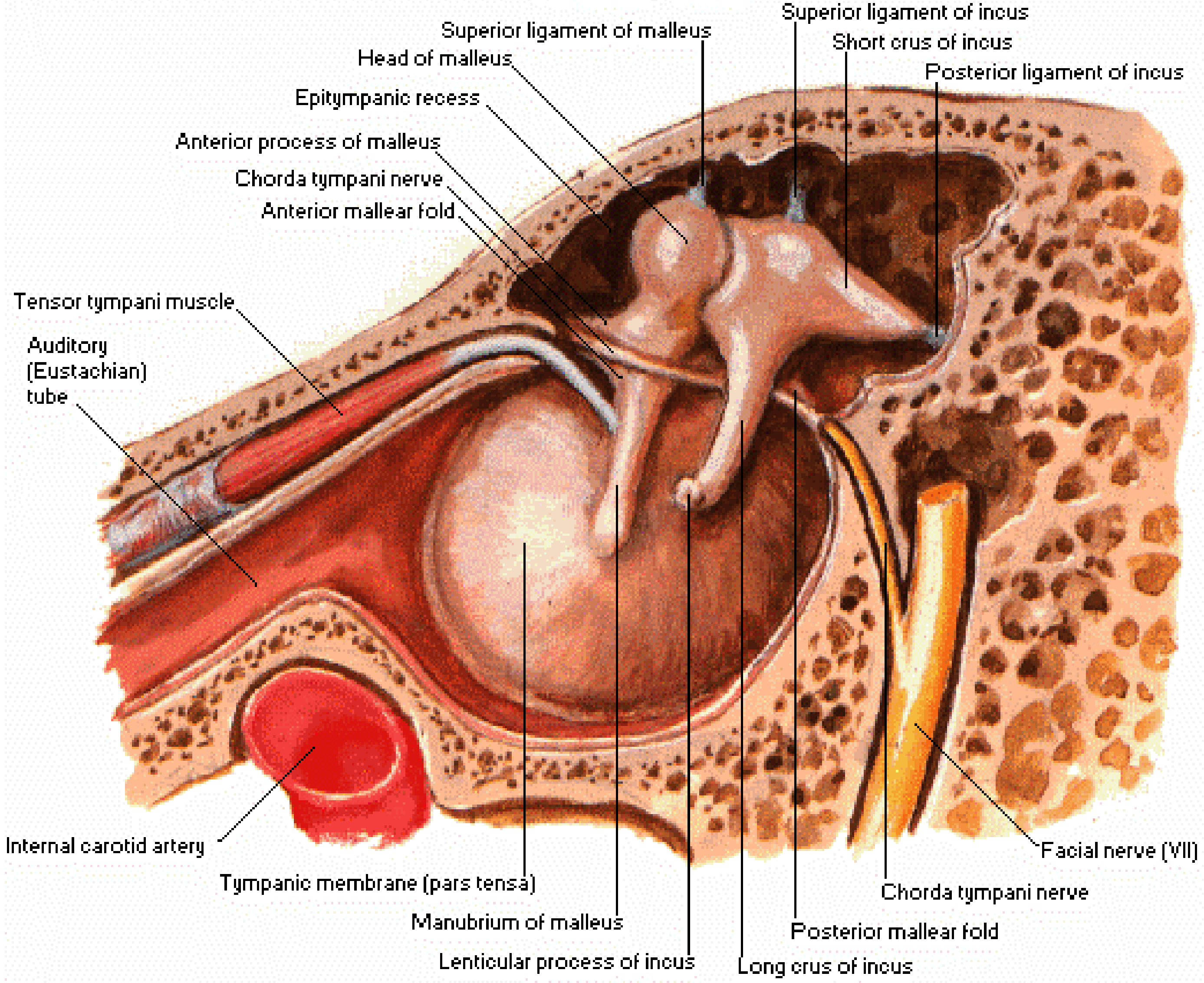
Coronal Oblique Section



Auditory Ossicles

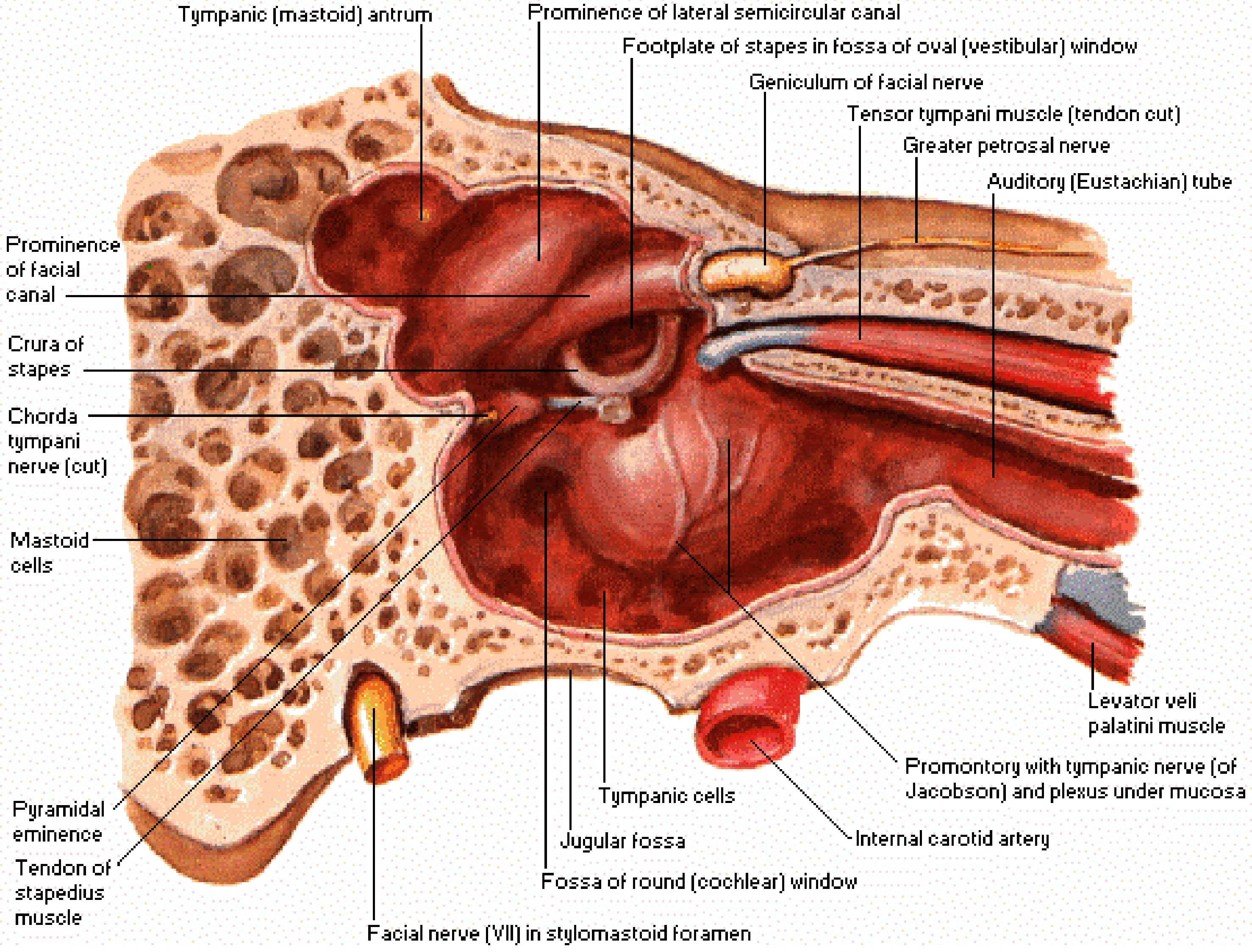


Medial View

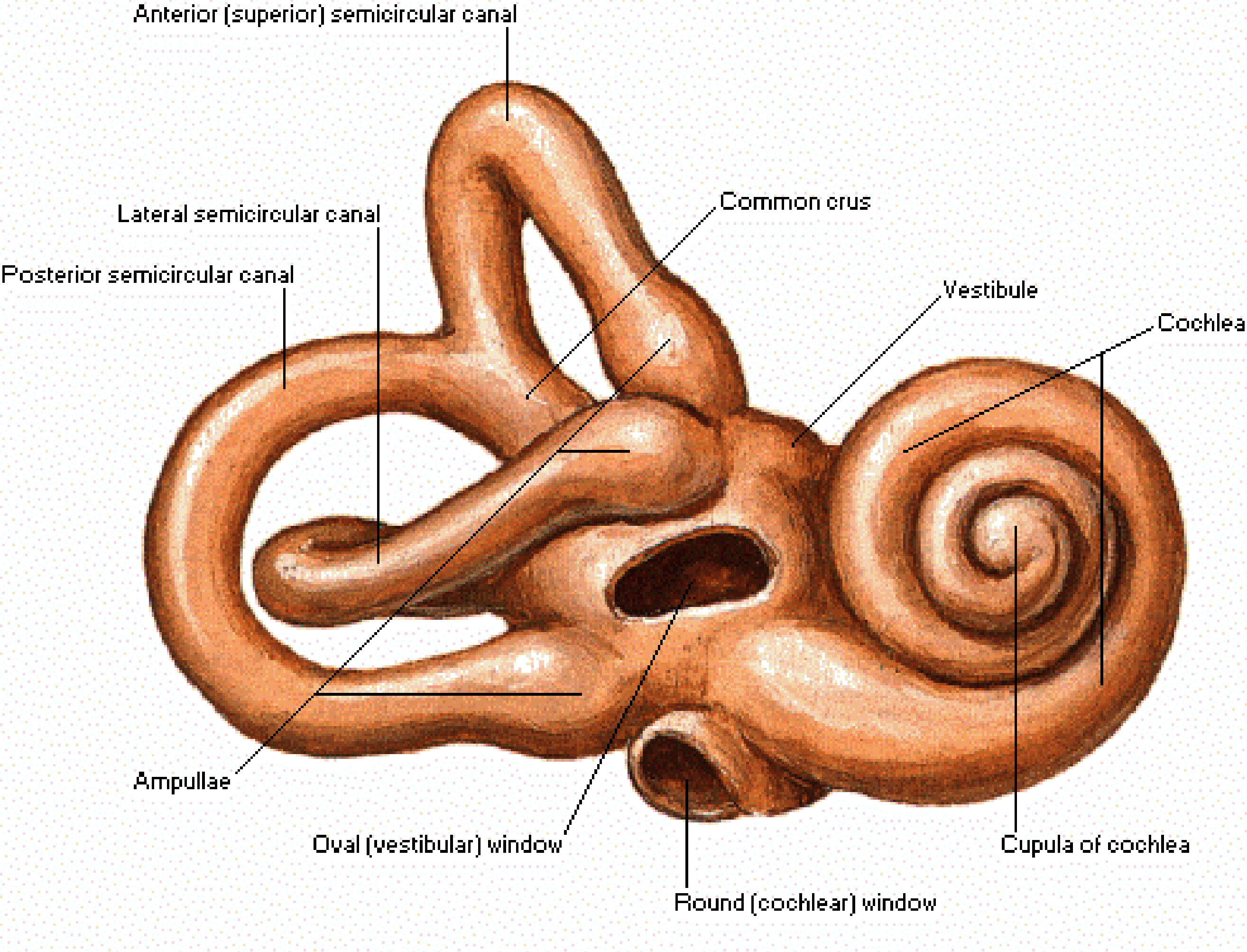


Superior ligament of incus
Superior ligament of malleus
Short crus of incus
Head of malleus
Posterior ligament of incus
Epitympanic recess
Anterior process of malleus
Chorda tympani nerve
Anterior mallear fold
Tensor tympani muscle
Auditory (Eustachian) tube
Internal carotid artery
Facial nerve (VII)
Tympanic membrane (pars tensa)
Chorda tympani nerve
Manubrium of malleus
Posterior mallear fold
Lenticular process of incus
Long crus of incus

Lateral View

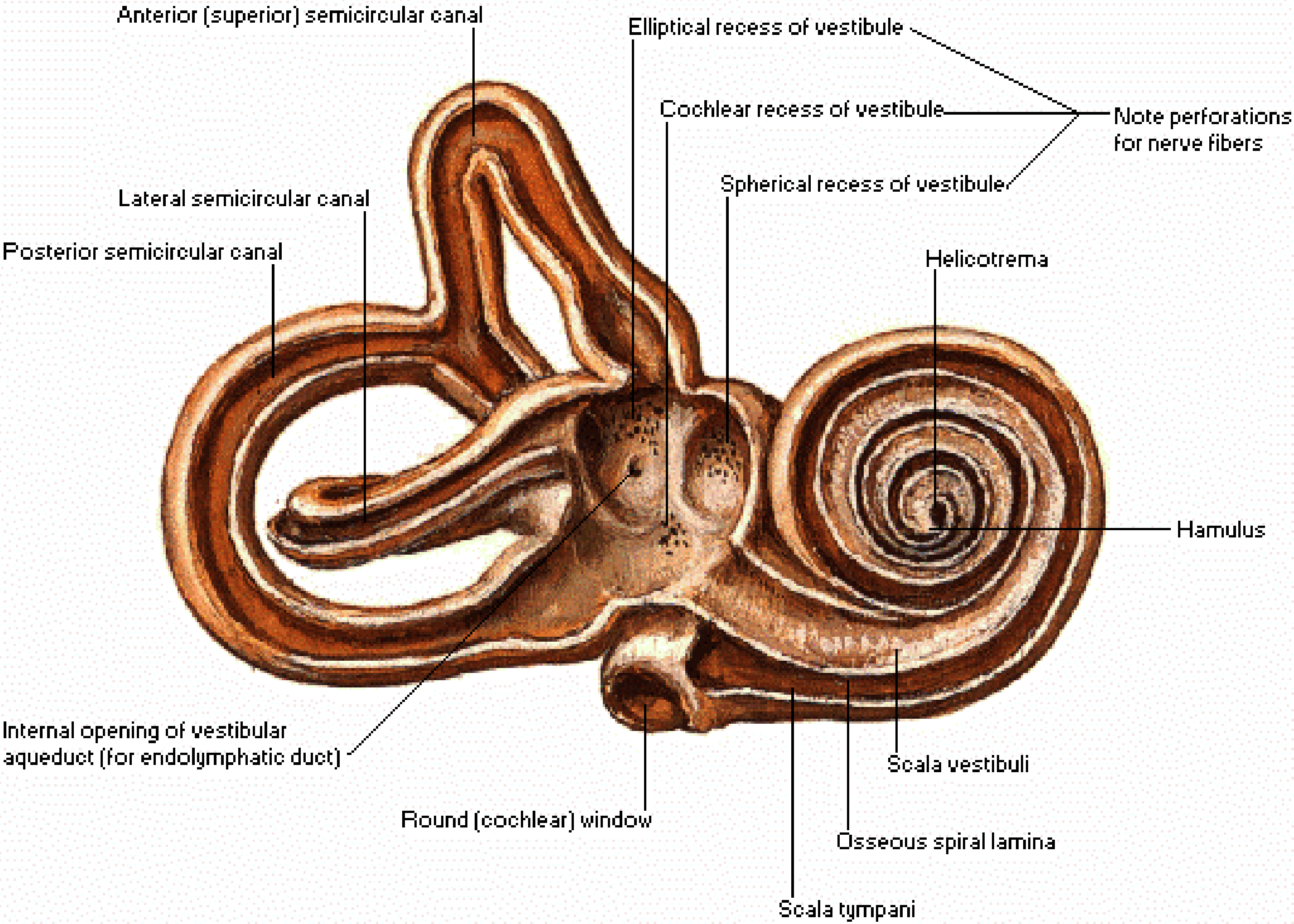


Anterolateral View

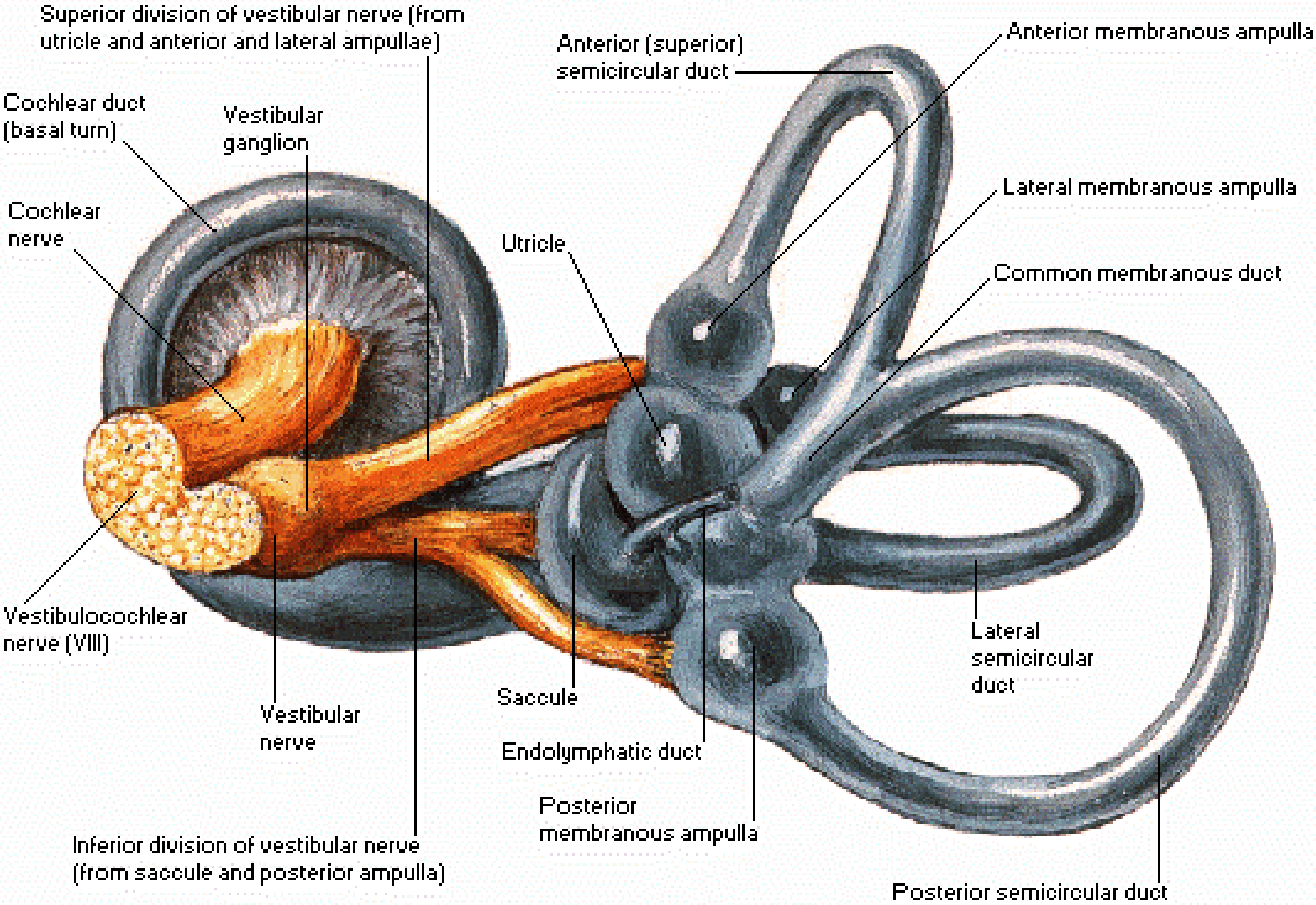


Surrounding cancellous bone removed

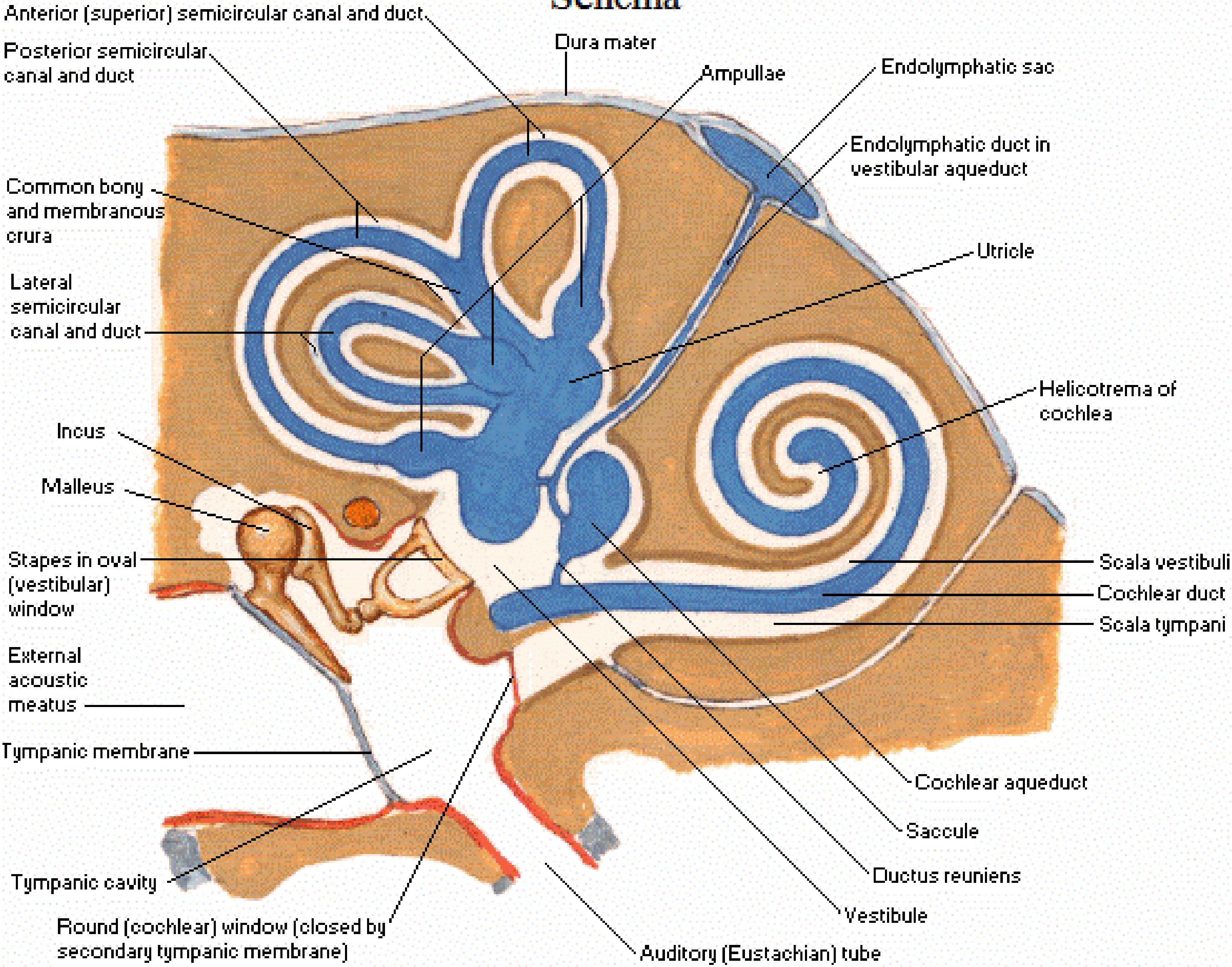
Membranous Labyrinth Removed



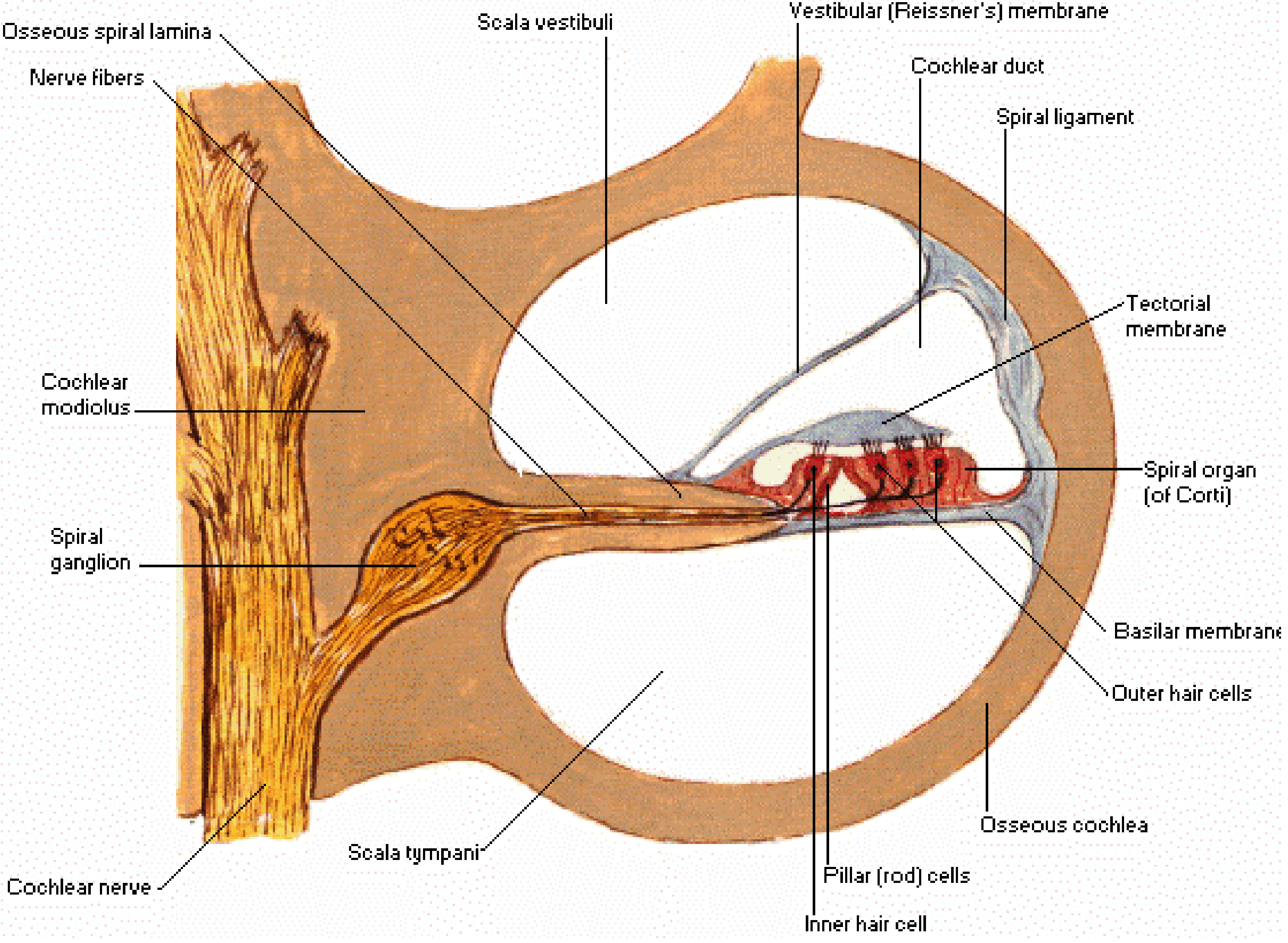
Posteromedial View



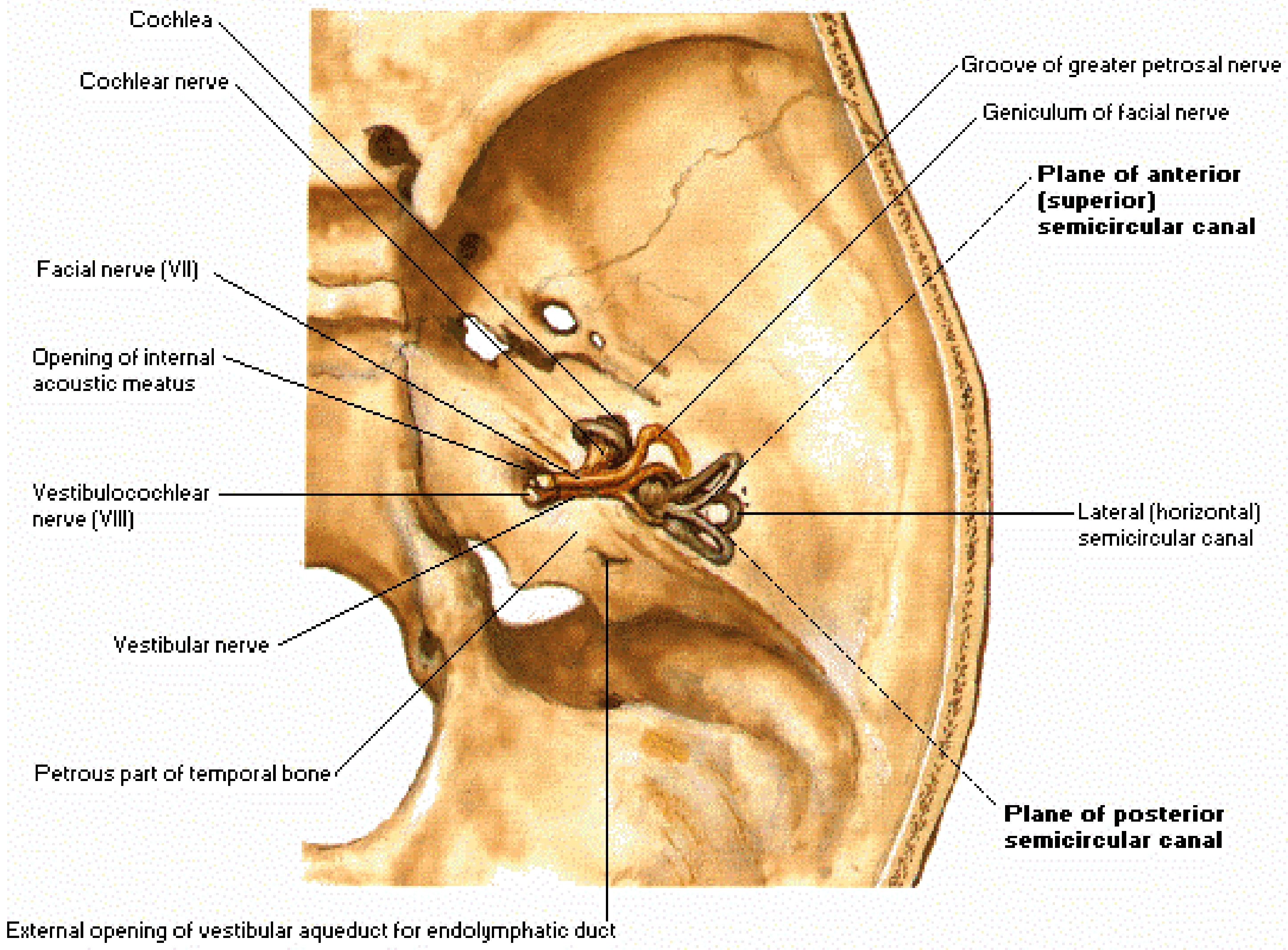
Schema


Anterior (superior) semicircular canal and duct
Dura mater
Posterior semicircular canal and duct
Ampullae
Endolymphatic sac
Endolymphatic duct in vestibular aqueduct
Common bony and membranous crura
Utricle
Lateral semicircular canal and duct
Helicotrema of cochlea
Incus
Malleus
Stapes in oval (vestibular) window
Scala vestibuli
Cochlear duct
Scala tympani
External acoustic meatus
Tympanic membrane
Cochlear aqueduct
Saccule
Ductus reuniens
Tympanic cavity
Vestibule
Round (cochlear) window (closed by secondary tympanic membrane)
Auditory (Eustachian) tube

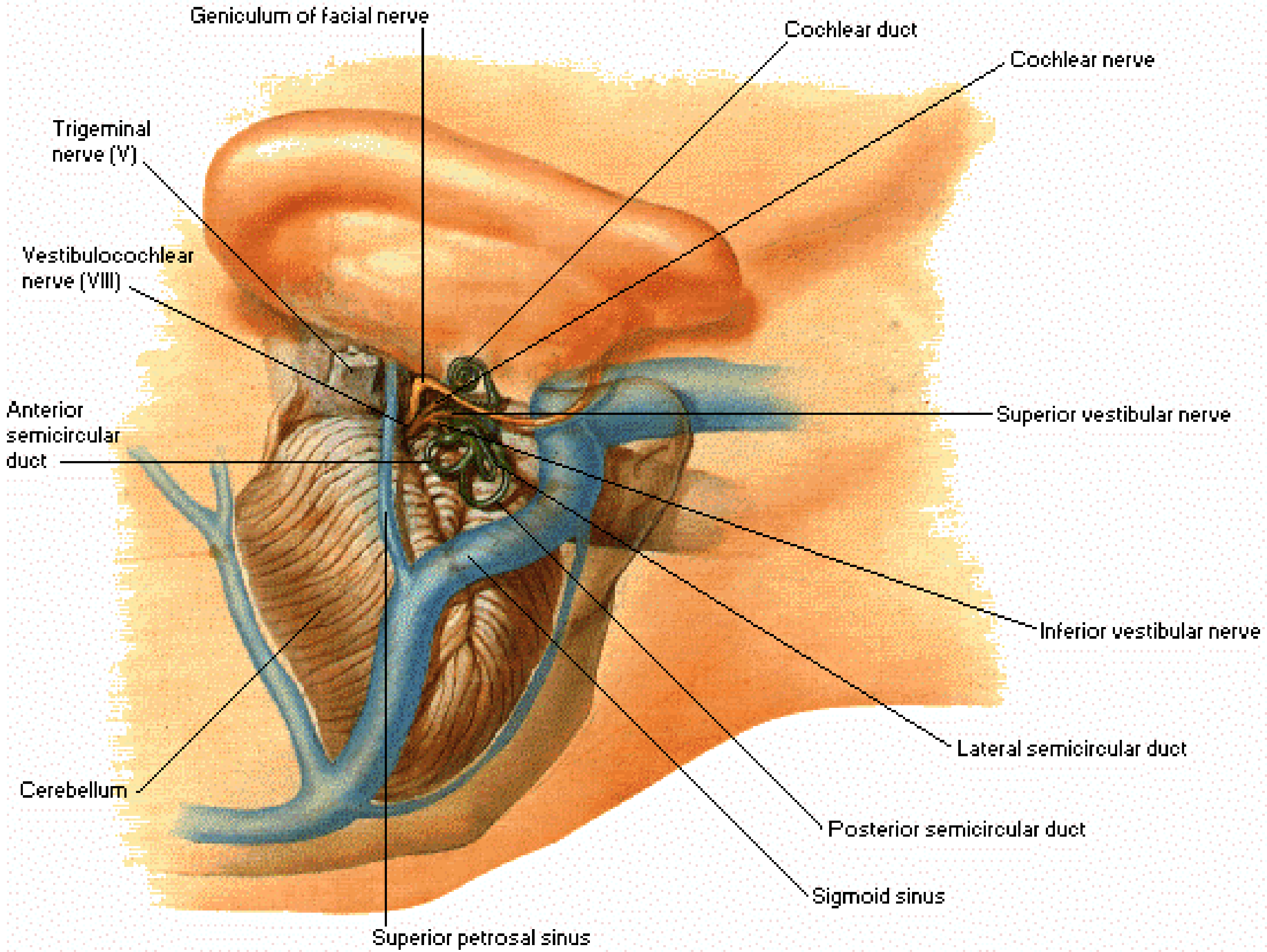
Section Through Turn of Cochlea



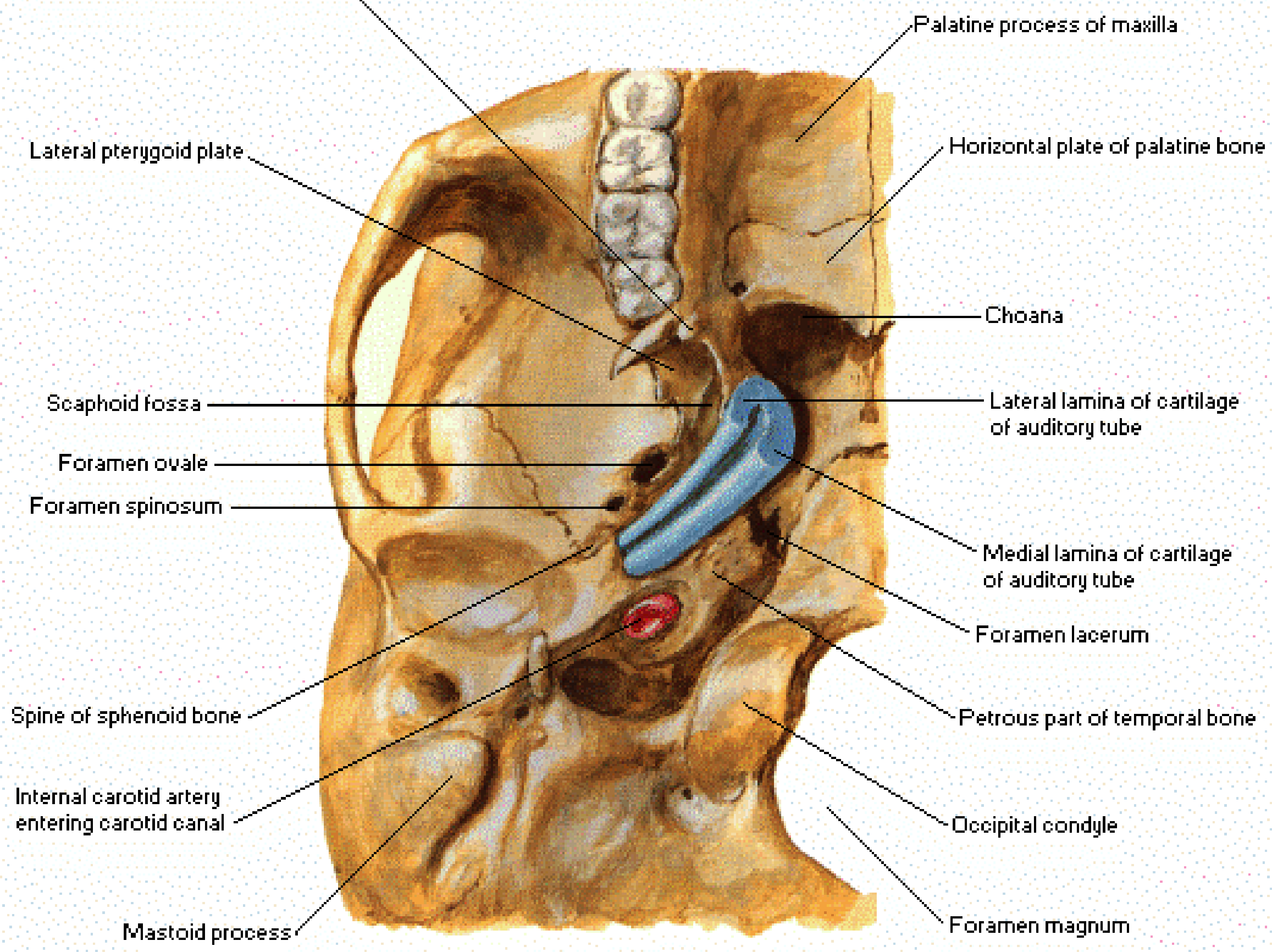
Superior Projection



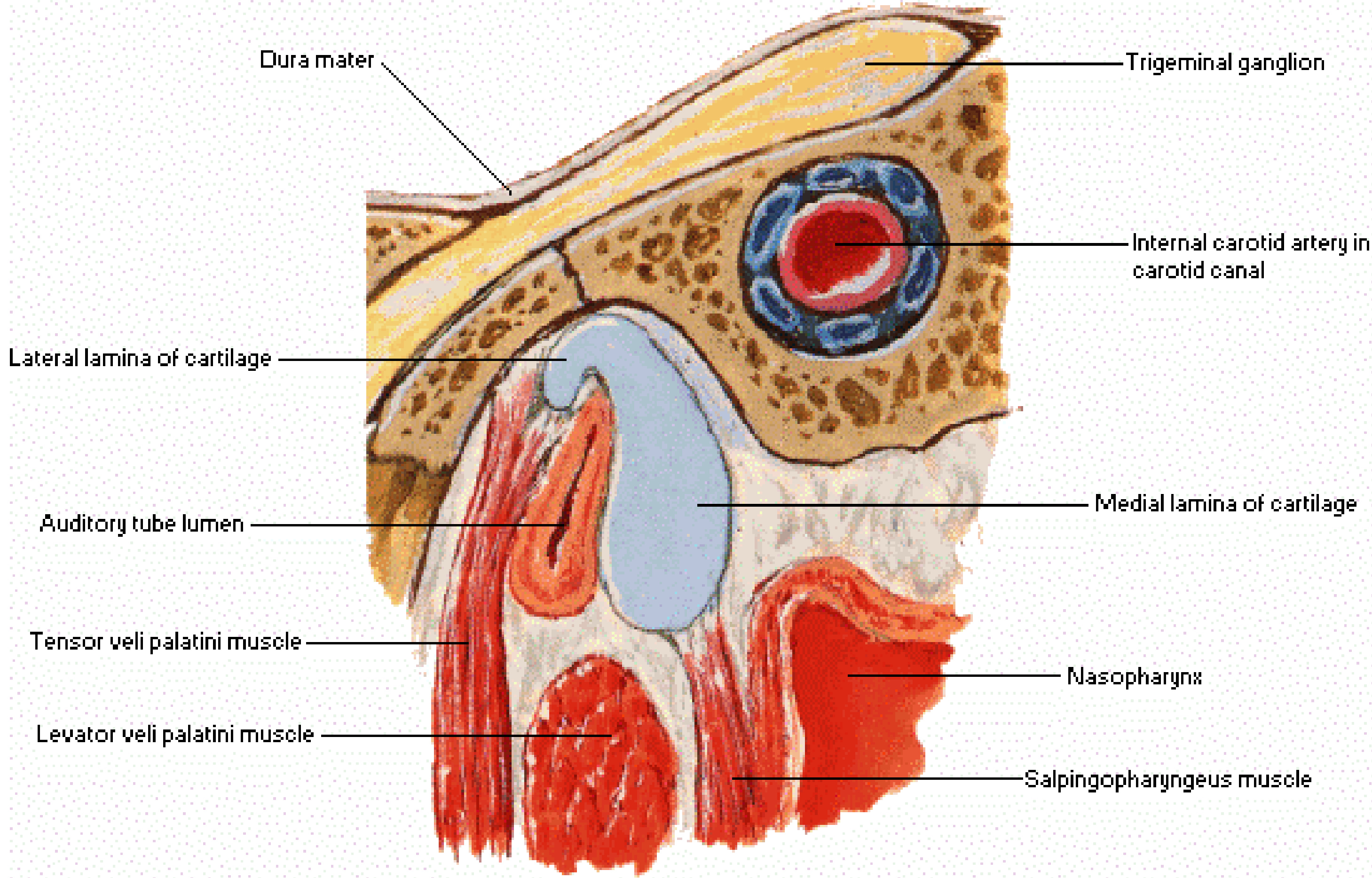
Lateral Projection



Inferior View

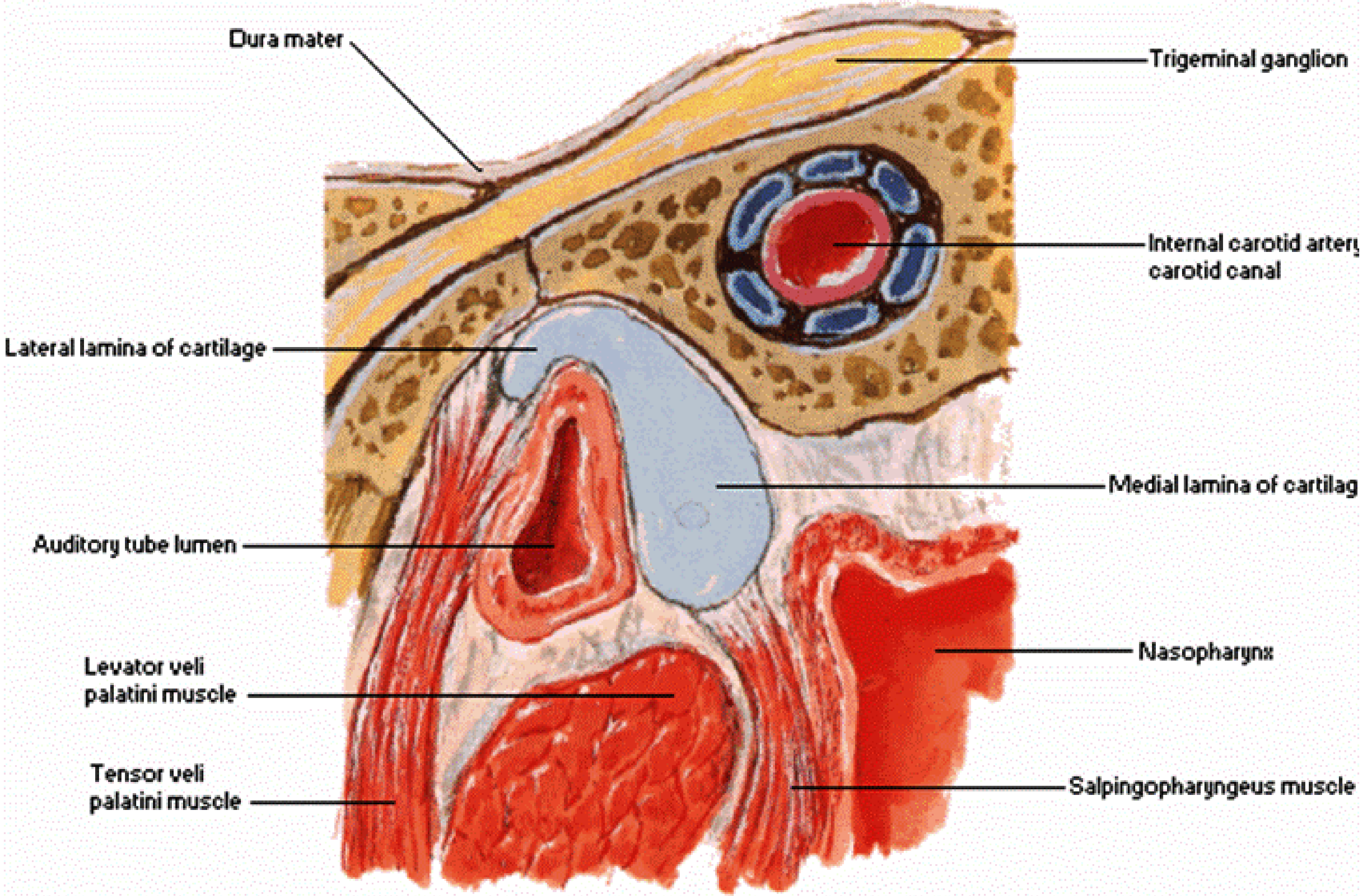


Tube Closed



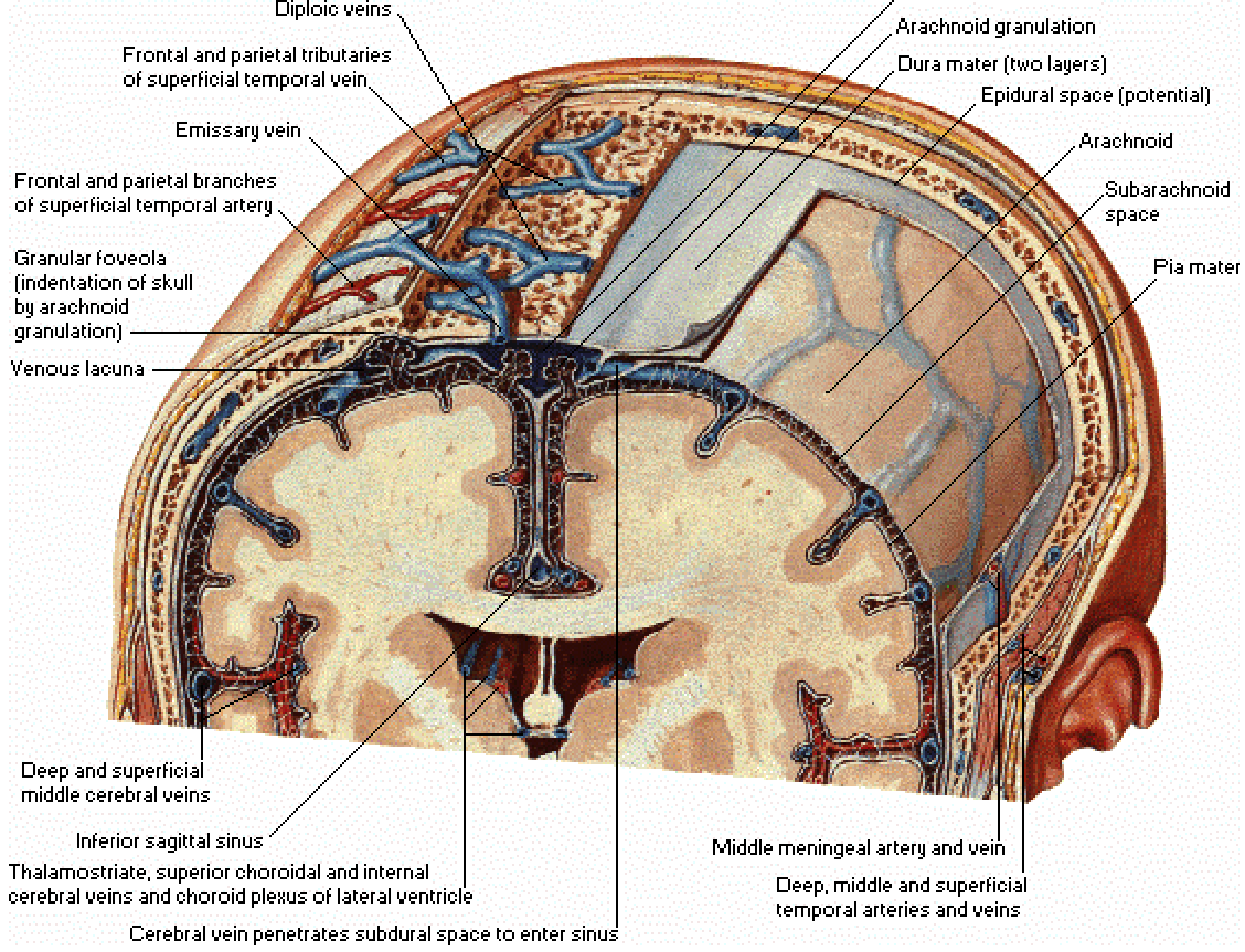
Auditory tube closed by elastic recoil of cartilage, tissue turgidity and tension of salpingopharyngeus muscles

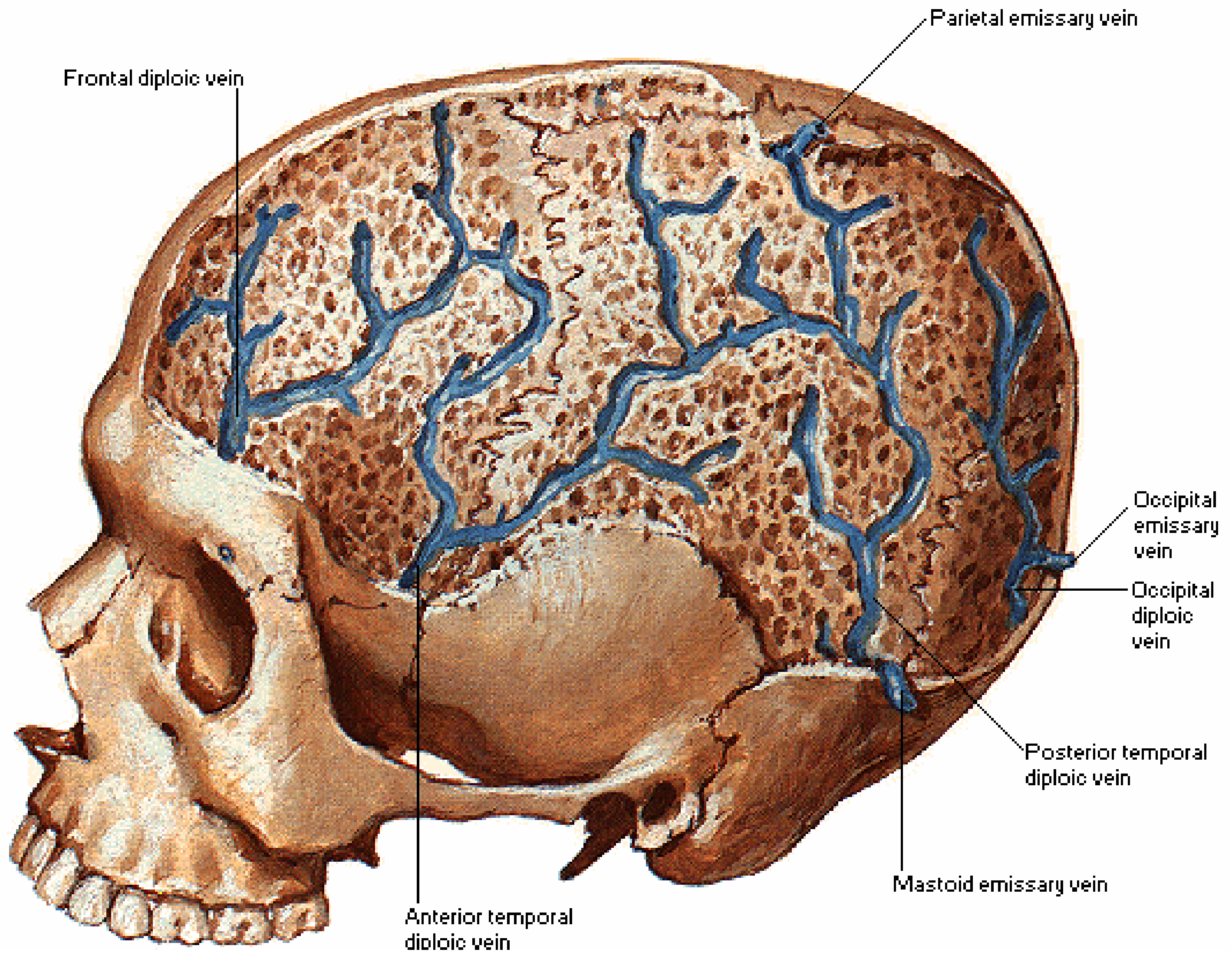
Tube Open



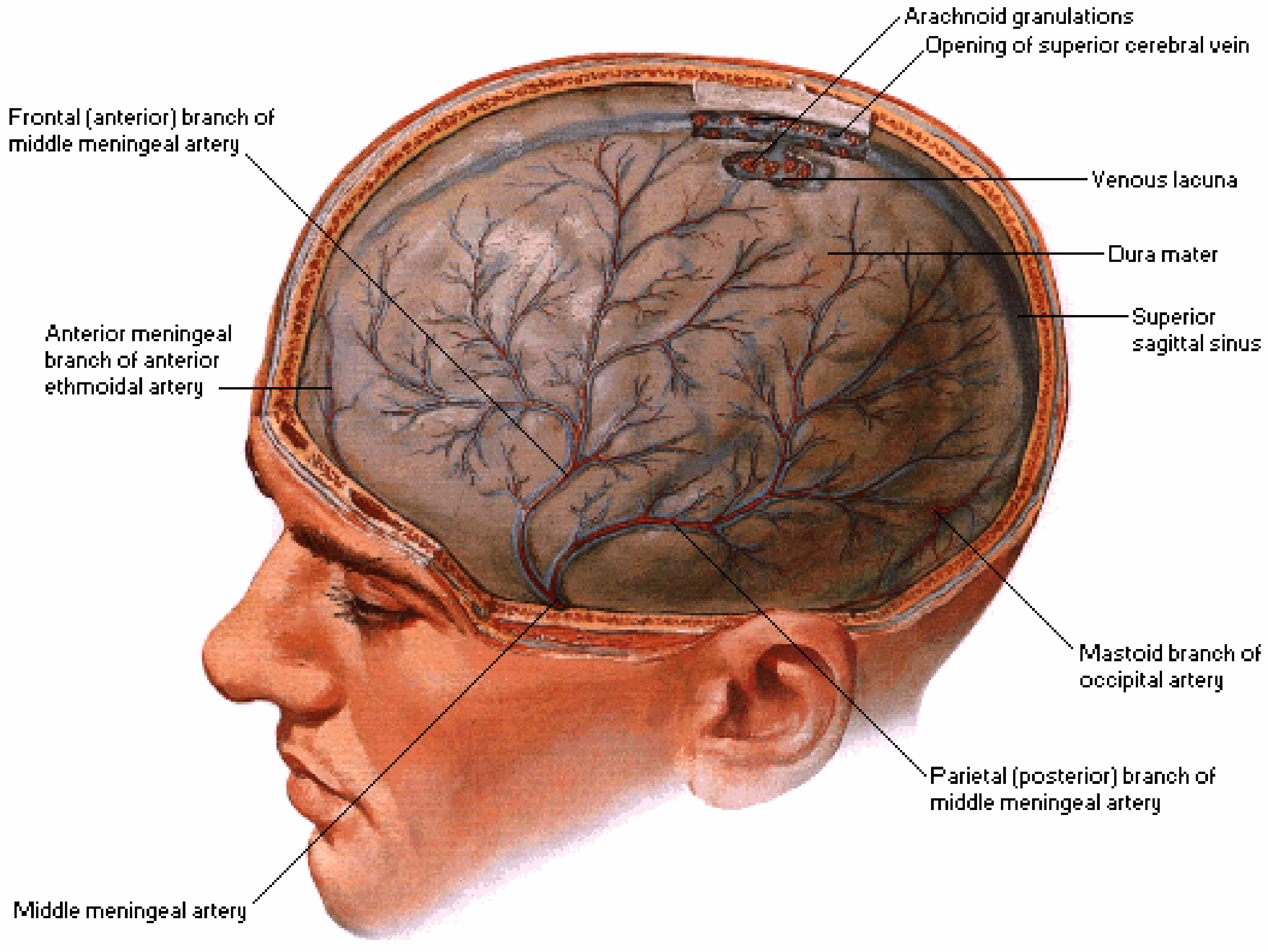
Lumen opened chiefly when attachment of tensor veli palatini muscle pulls wall of tube laterally during swallowing

Coronal Dissection

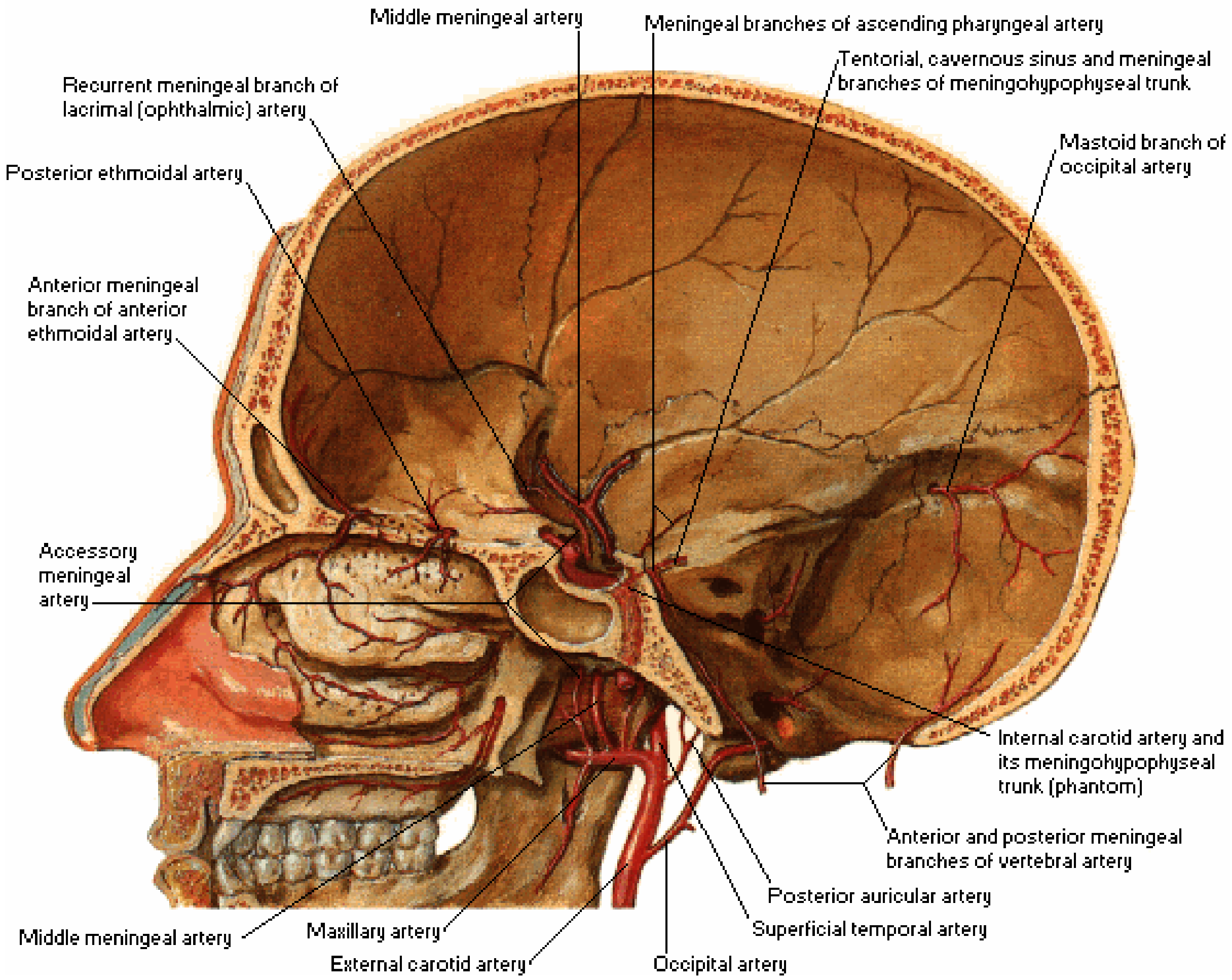




Parietal emissary vein
Frontal diploic vein
Occipital emissary vein
Occipital diploic vein
Posterior temporal diploic vein
Mastoid emissary vein
Anterior temporal diploic vein

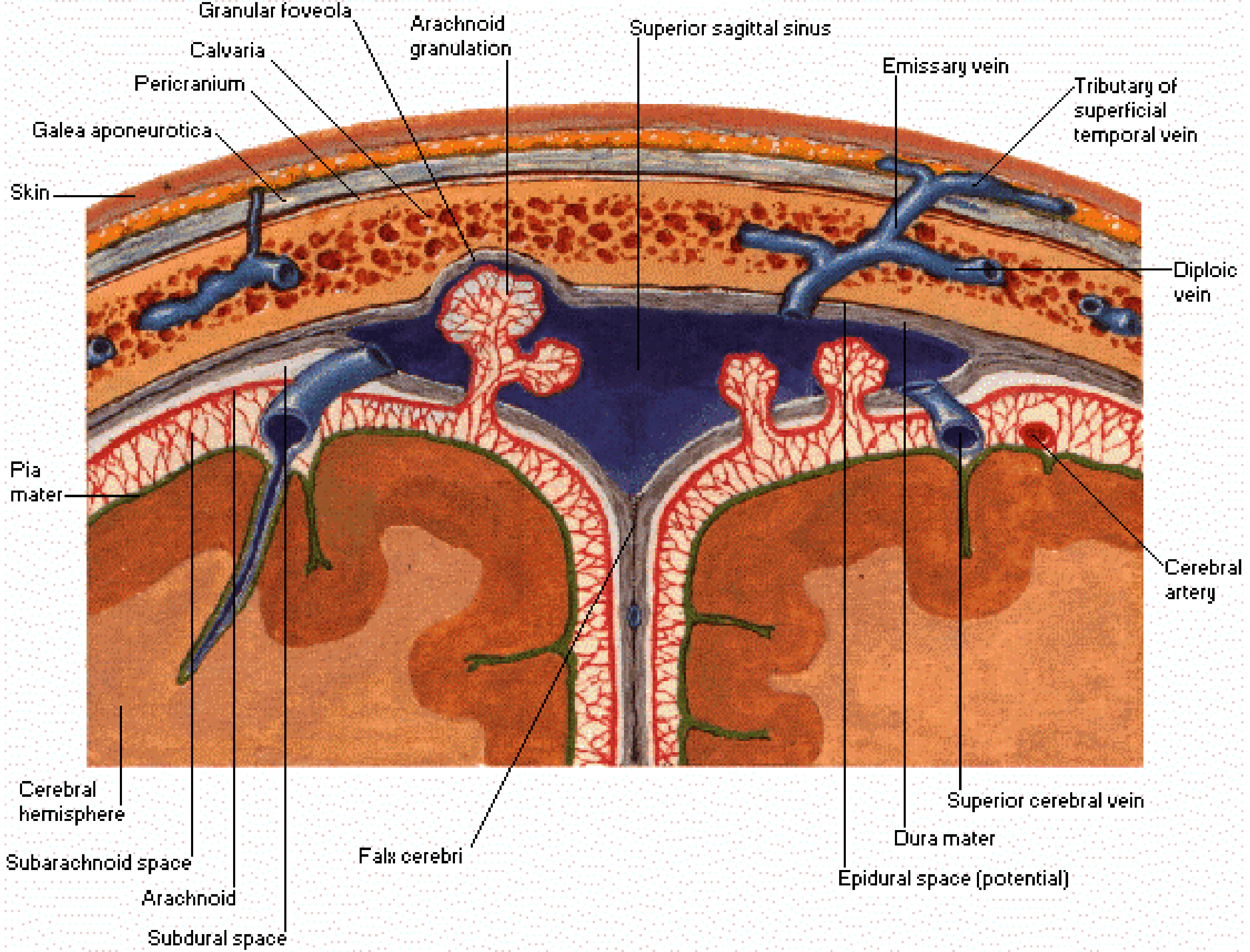


Arachnoid granulations
Opening of superior cerebral vein
Frontal (anterior) branch of middle meningeal artery
Venous lacuna
Dura mater
Superior sagittal sinus
Anterior meningeal branch of anterior ethmoidal artery
Mastoid branch of occipital artery
Parietal (posterior) branch of middle meningeal artery
Middle meningeal artery

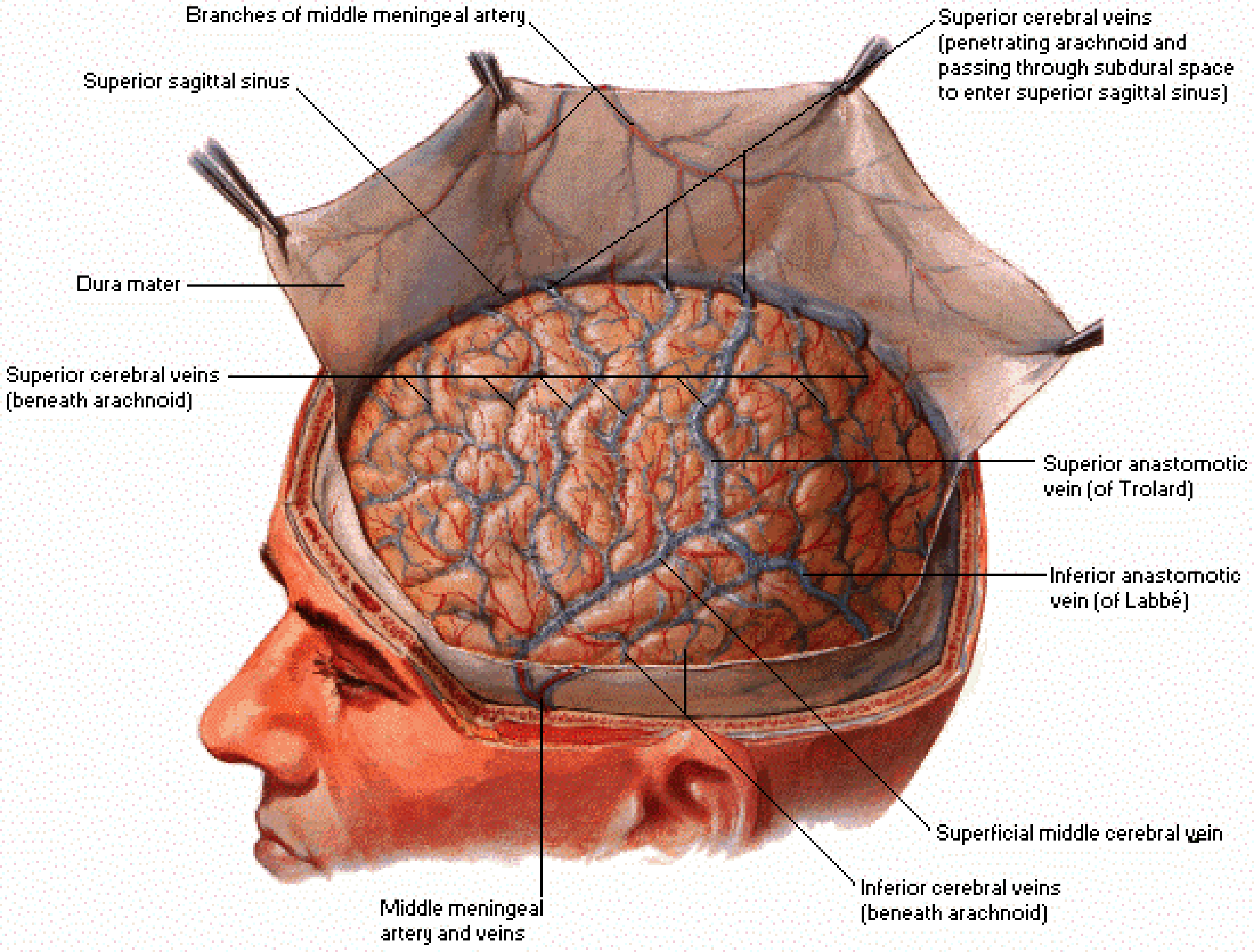


Middle meningeal artery
Meningeal branches of ascending pharyngeal artery
Tentorial, cavernous sinus and meningeal branches of meningohypophyseal trunk
Recurrent meningeal branch of lacrimal (ophthalmic) artery
Mastoid branch of occipital artery
Posterior ethmoidal artery
Anterior meningeal branch of anterior ethmoidal artery
Accessory meningeal artery
Internal carotid artery and its meningohypophyseal trunk (phantom)
Anterior and posterior meningeal branches of vertebral artery
Posterior auricular artery
Superficial temporal artery
Middle meningeal artery
Maxillary artery
External carotid artery
Occipital artery

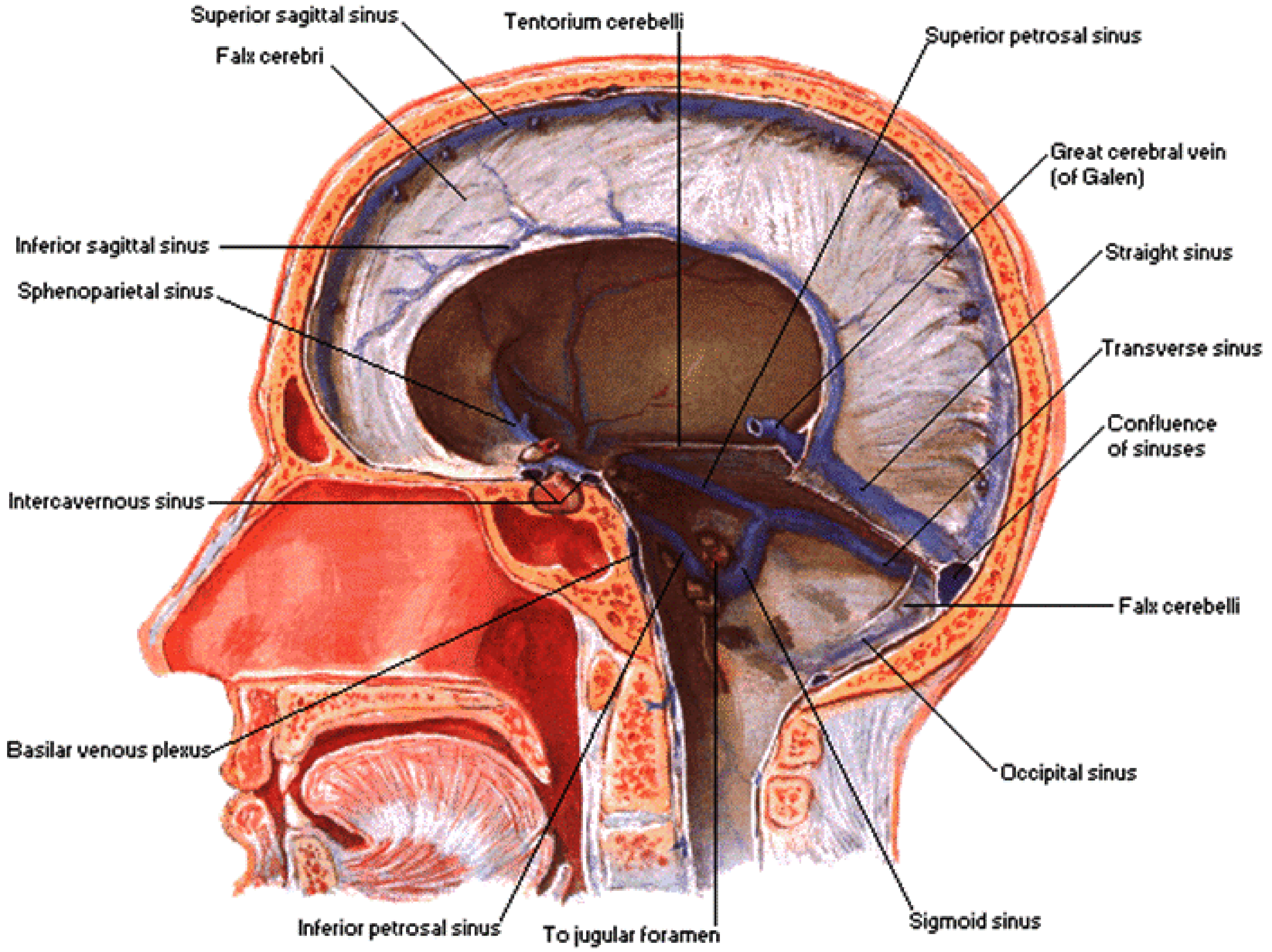
Frontal Section



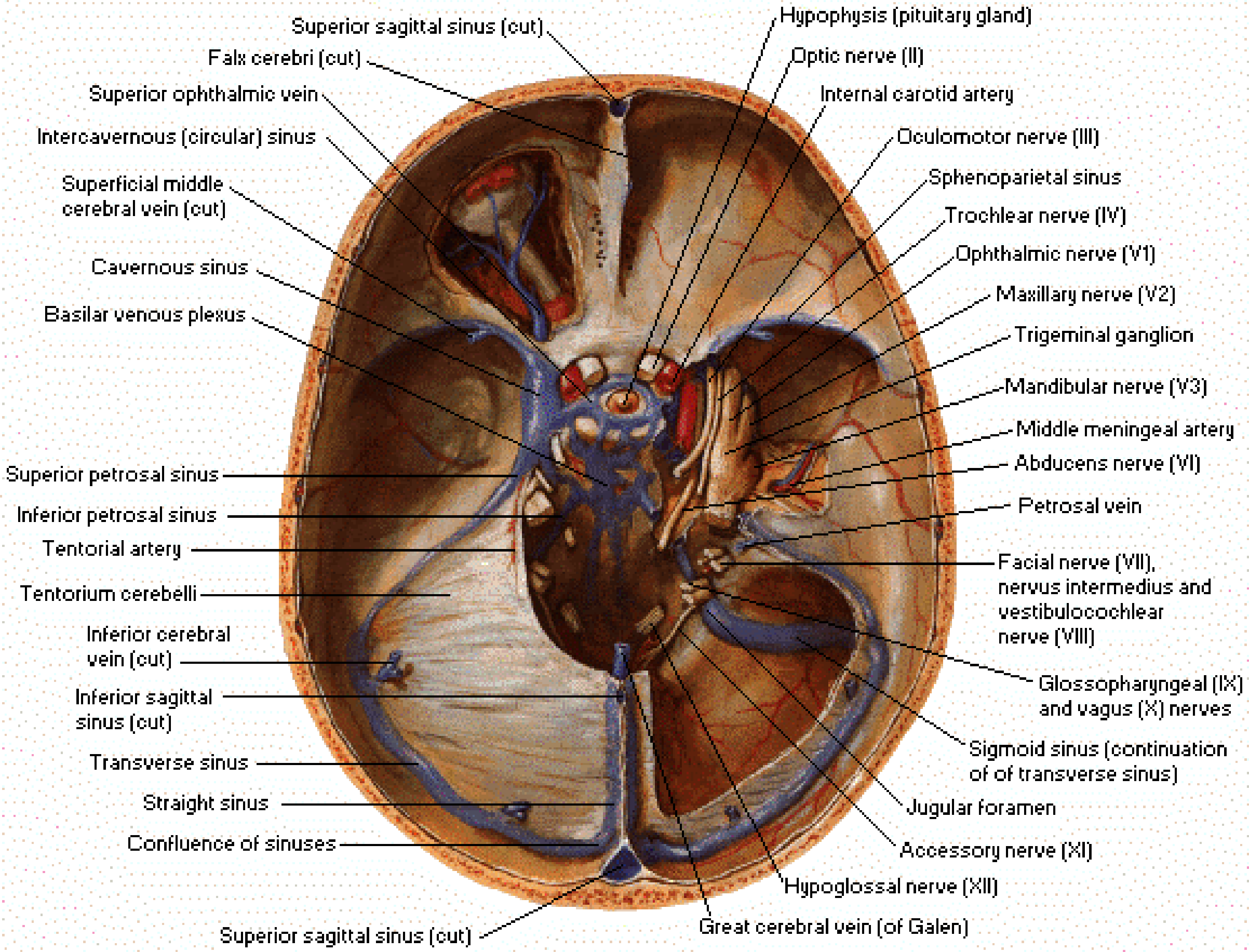
Dura Mater Lifted



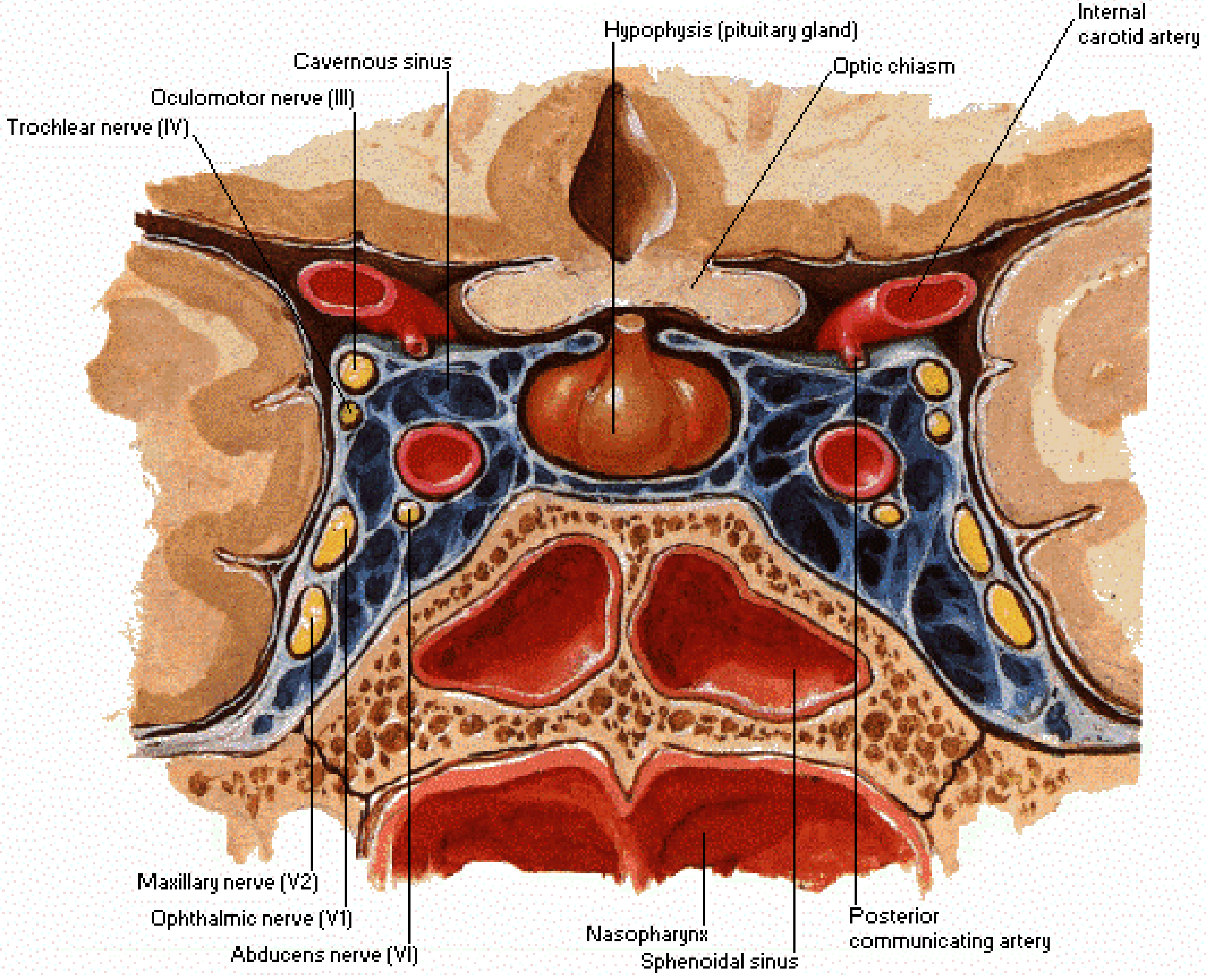
Sagittal Section



Cranial Floor - Superior View

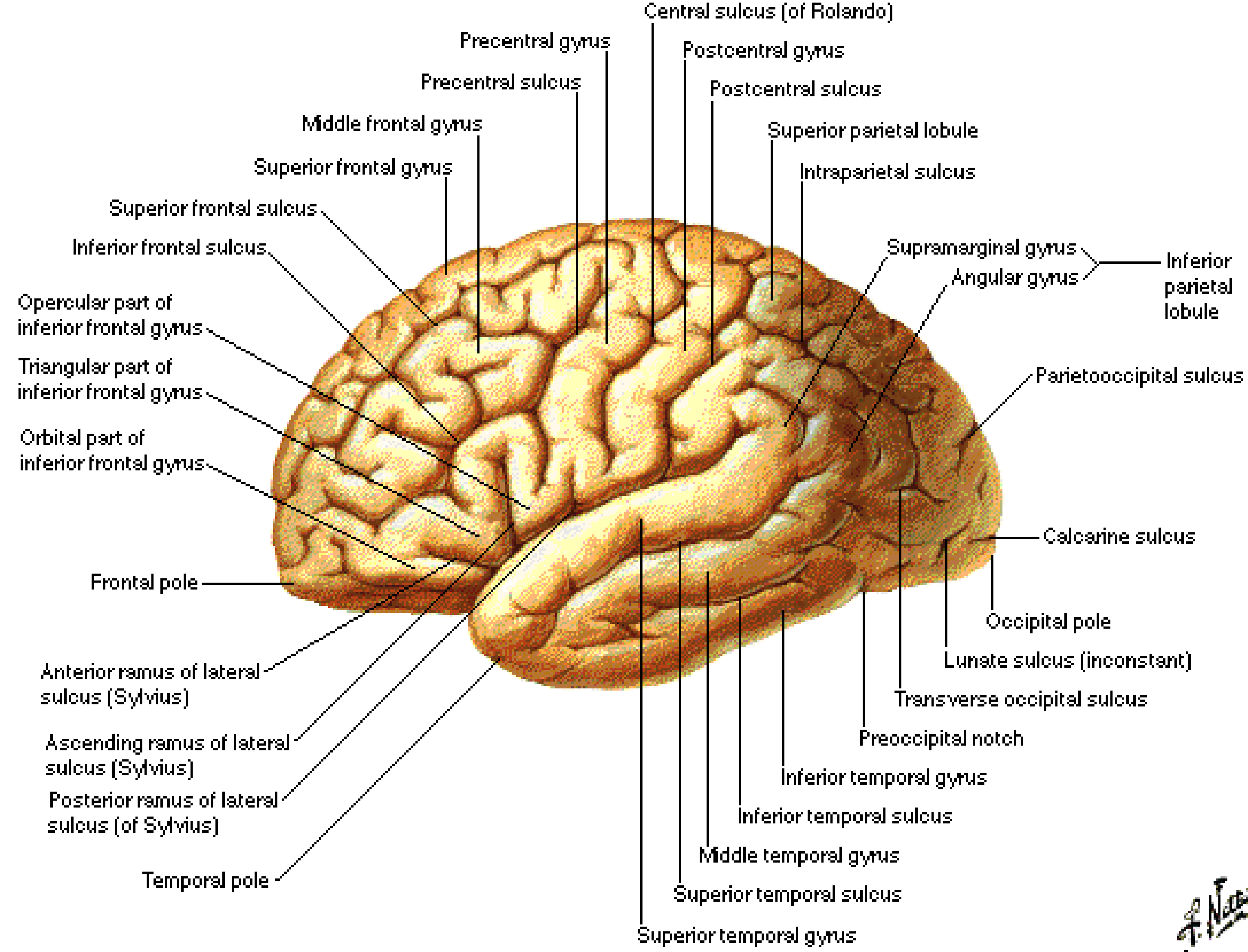


Coronal Section



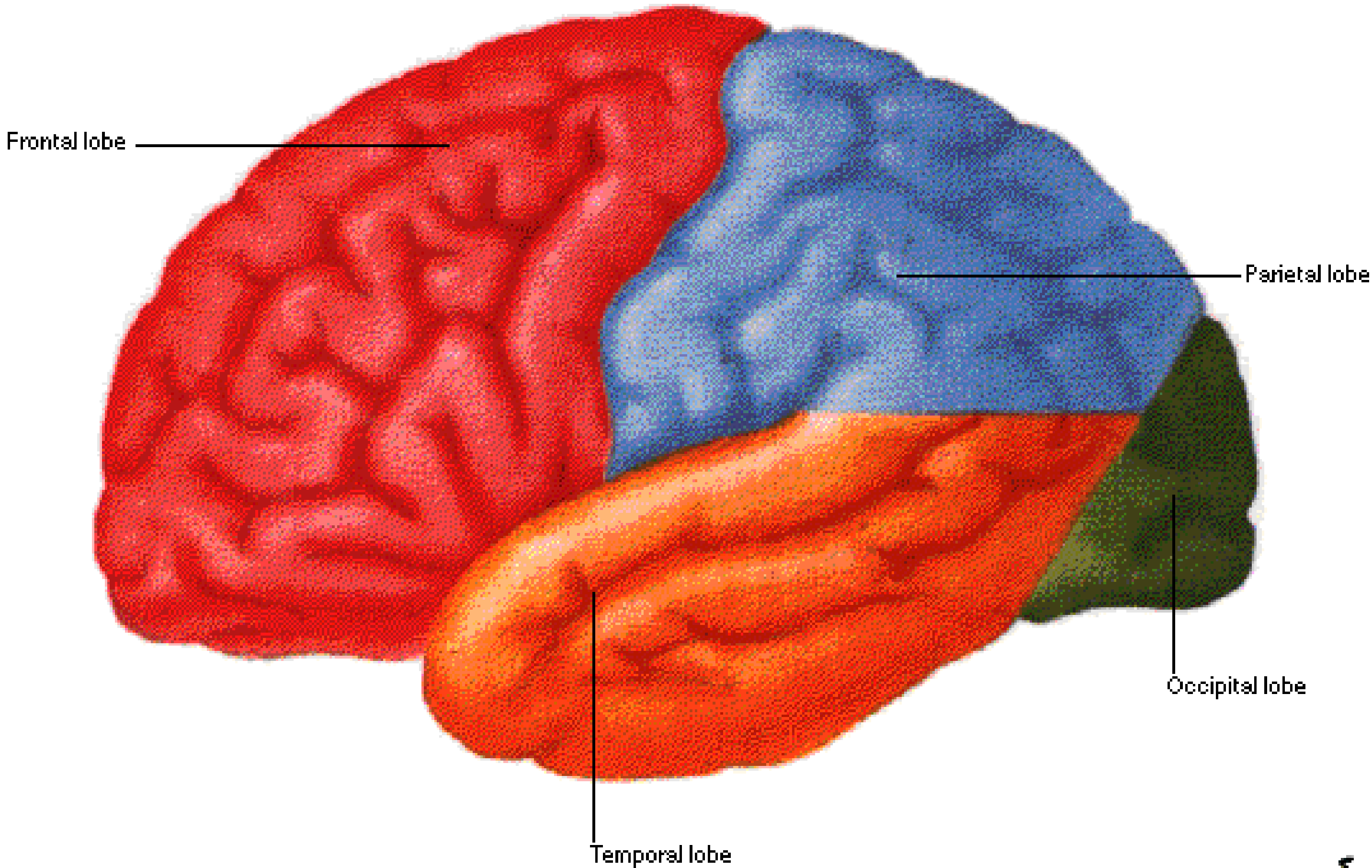
Cerebrum

Lateral View

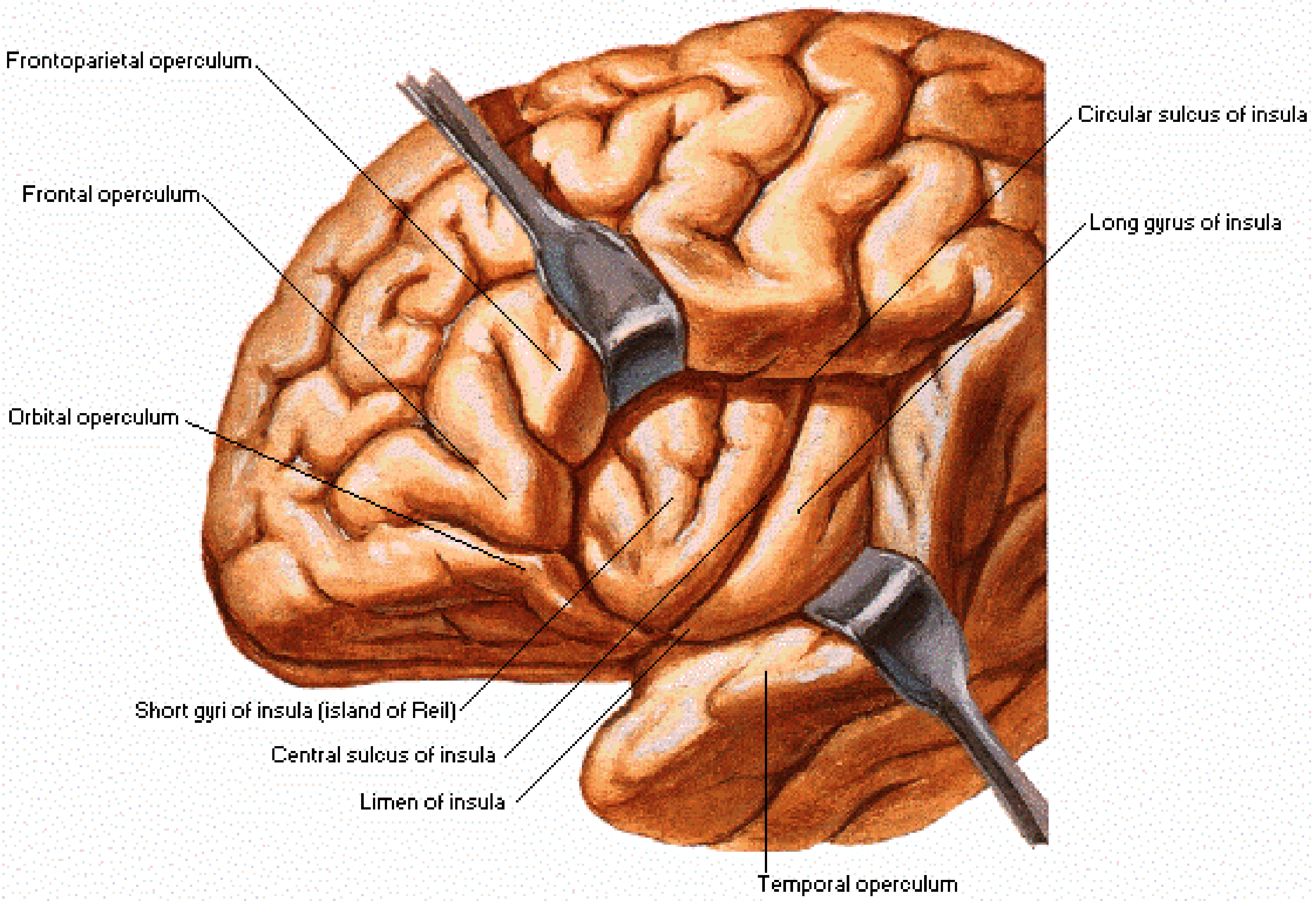


Cerebrum - Lobes

Lateral View

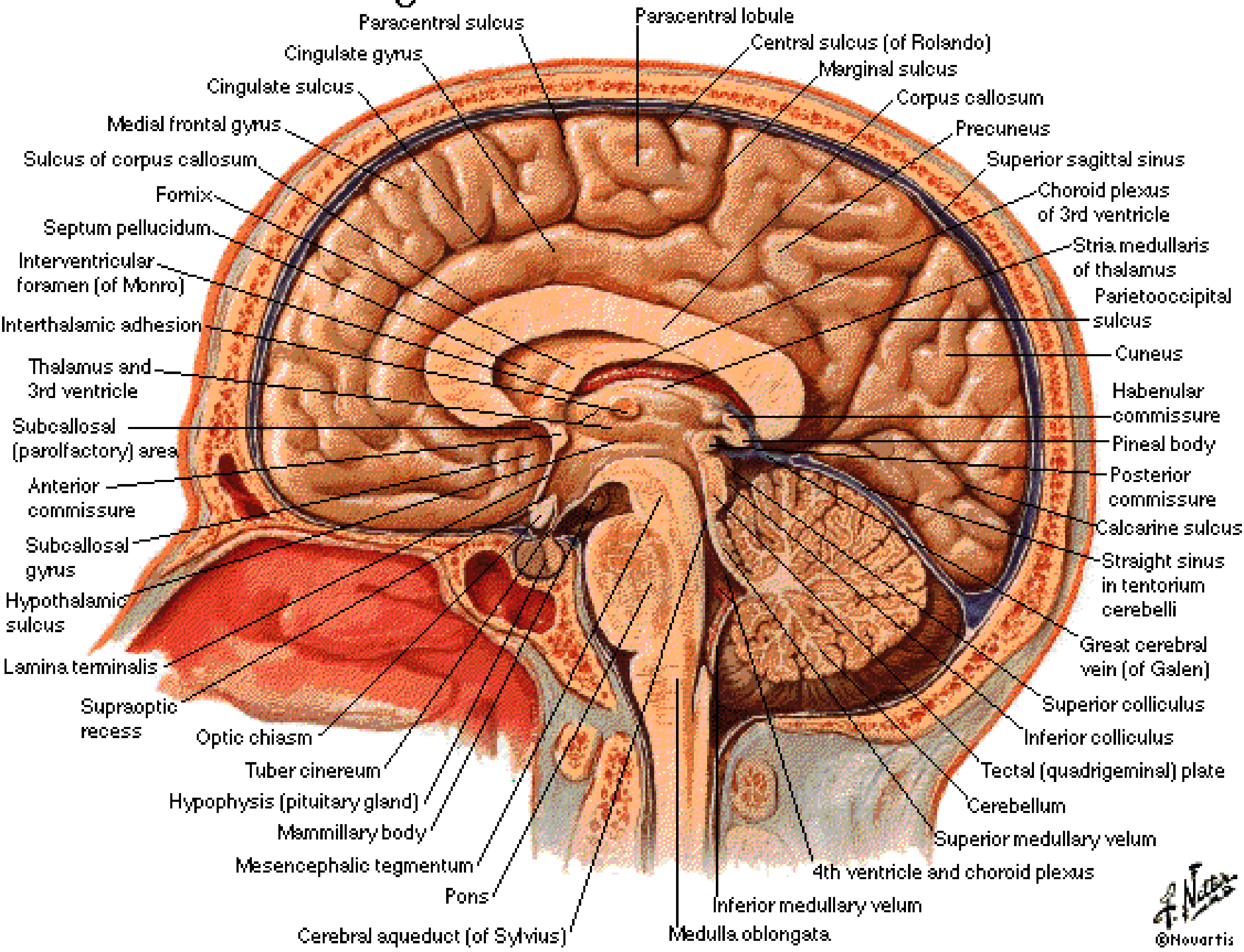


Lateral View

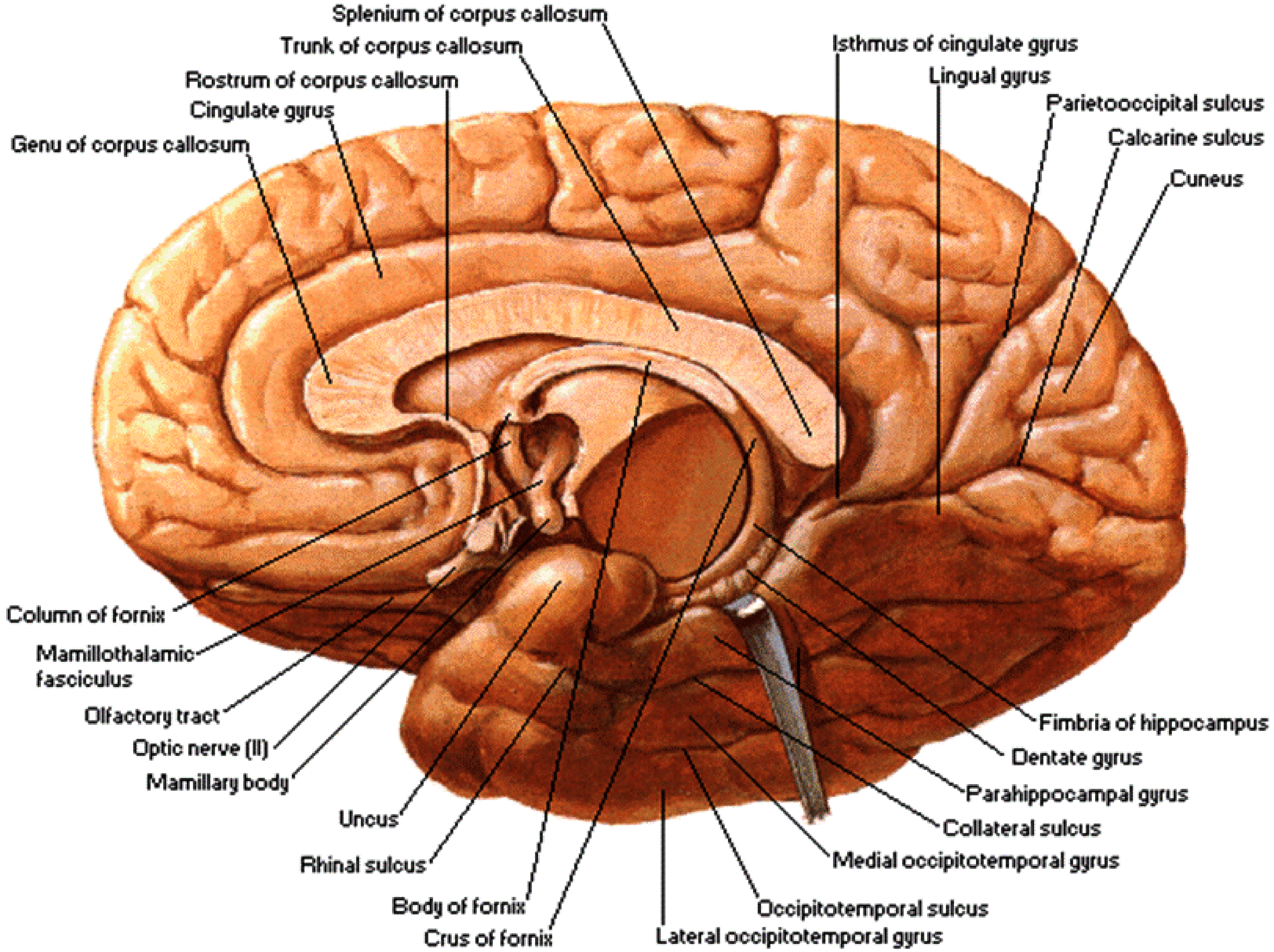


Cerebrum - Brain in Situ

Sagittal Section - Medial View

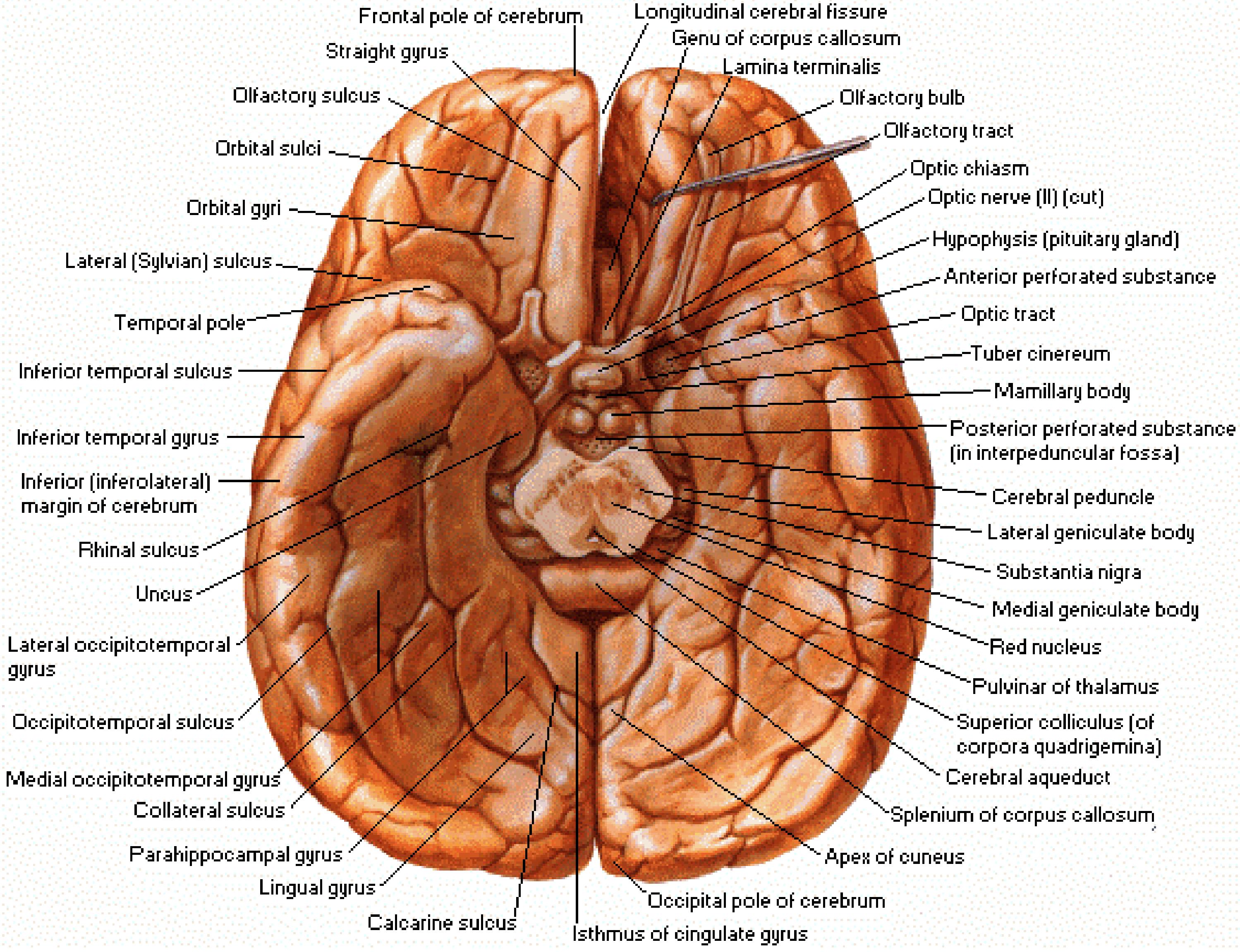


Medial View

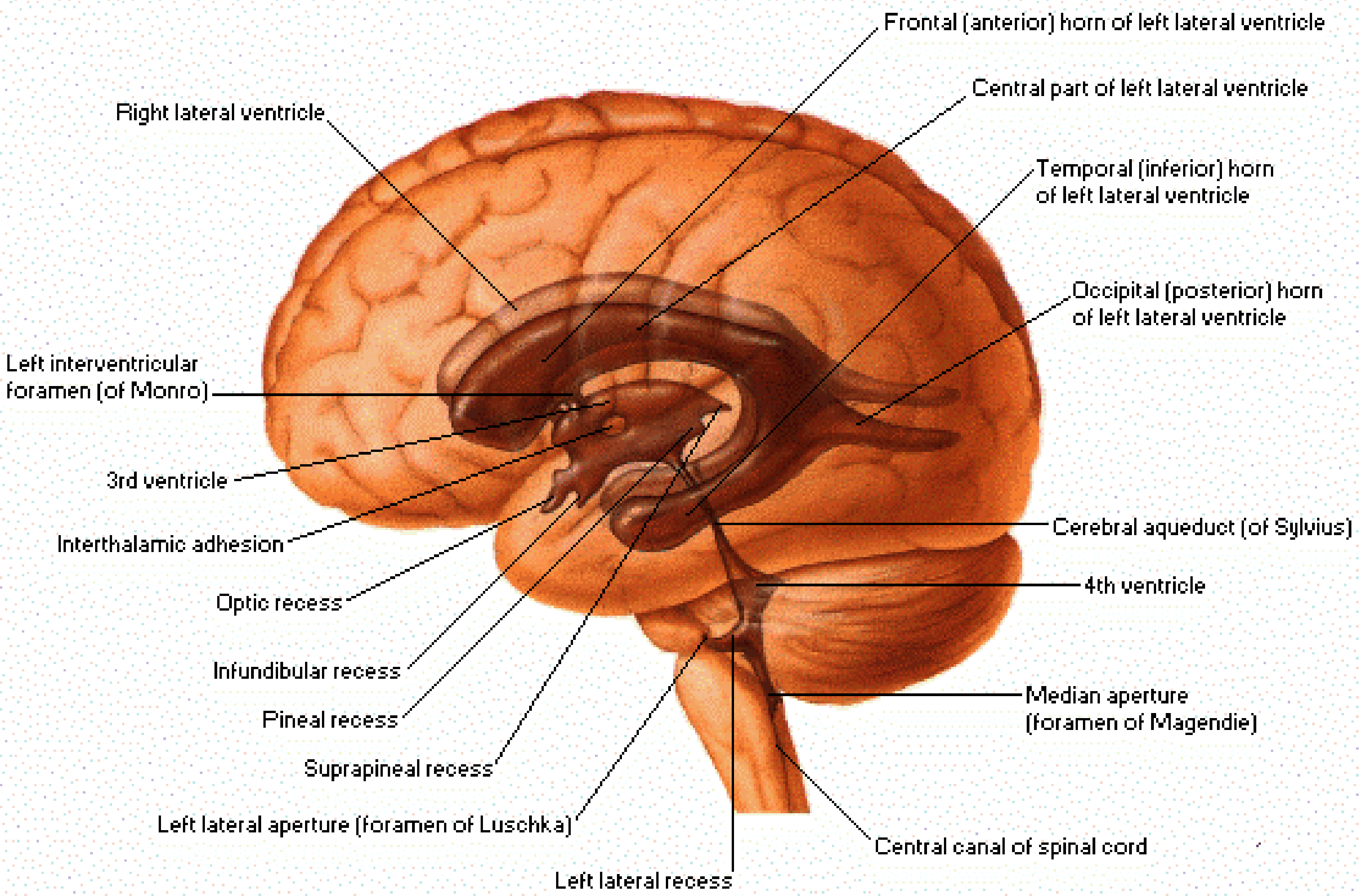


Splenium of corpus callosum
Trunk of corpus callosum
Rostrum of corpus callosum
Cingulate gyrus
Genu of corpus callosum
Isthmus of cingulate gyrus
Lingual gyrus
Parietooccipital sulcus
Calcarine sulcus
Cuneus
Column of fornix
Mamillothalamic fasciculus
Olfactory tract
Optic nerve (II)
Mamillary body
Uncus
Rhinal sulcus
Body of fornix
Crus of fornix
Fimbria of hippocampus
Dentate gyrus
Parahippocampal gyrus
Collateral sulcus
Medial occipitotemporal gyrus
Occipitotemporal sulcus
Lateral occipitotemporal gyrus

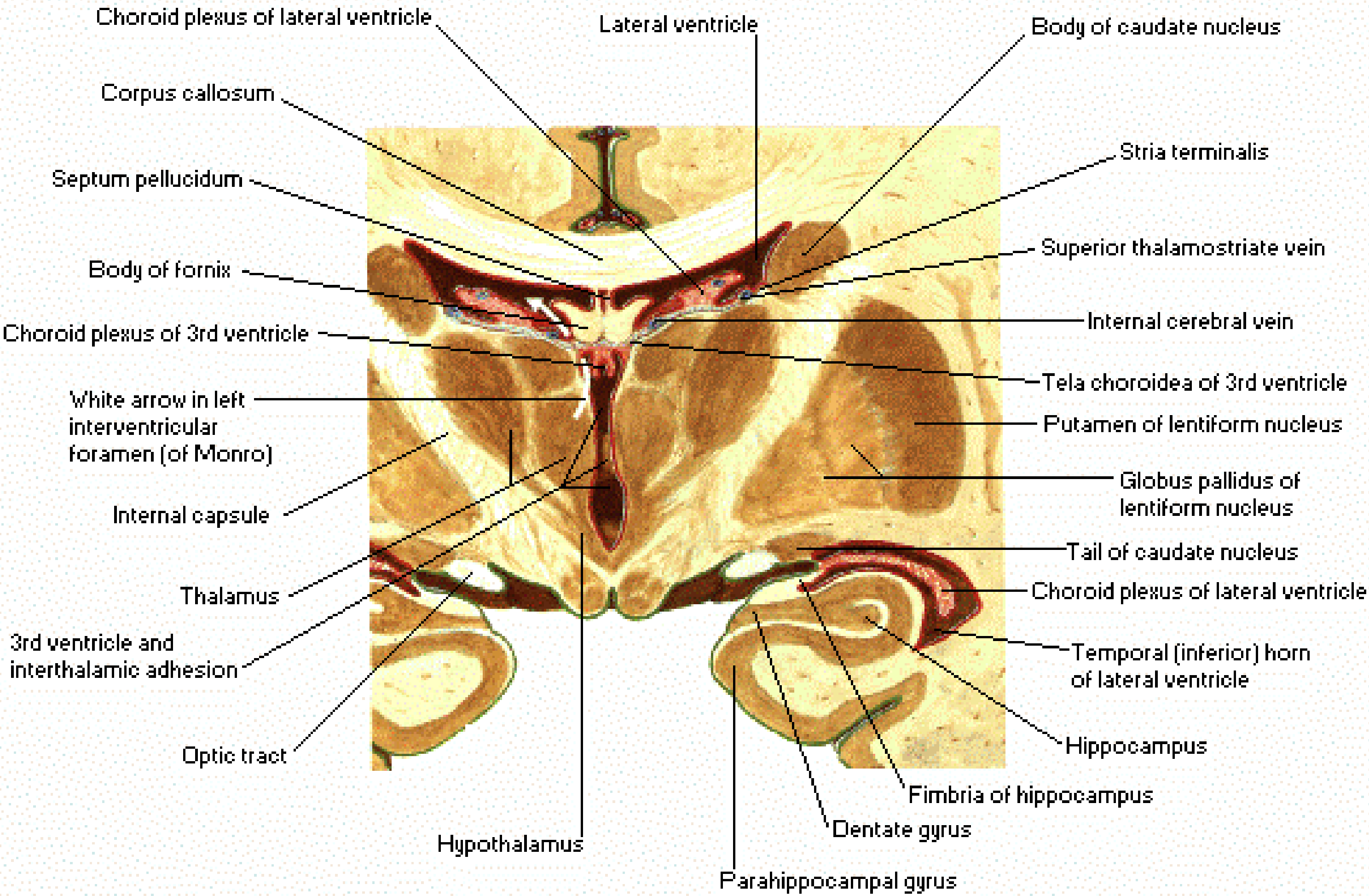
Inferior View

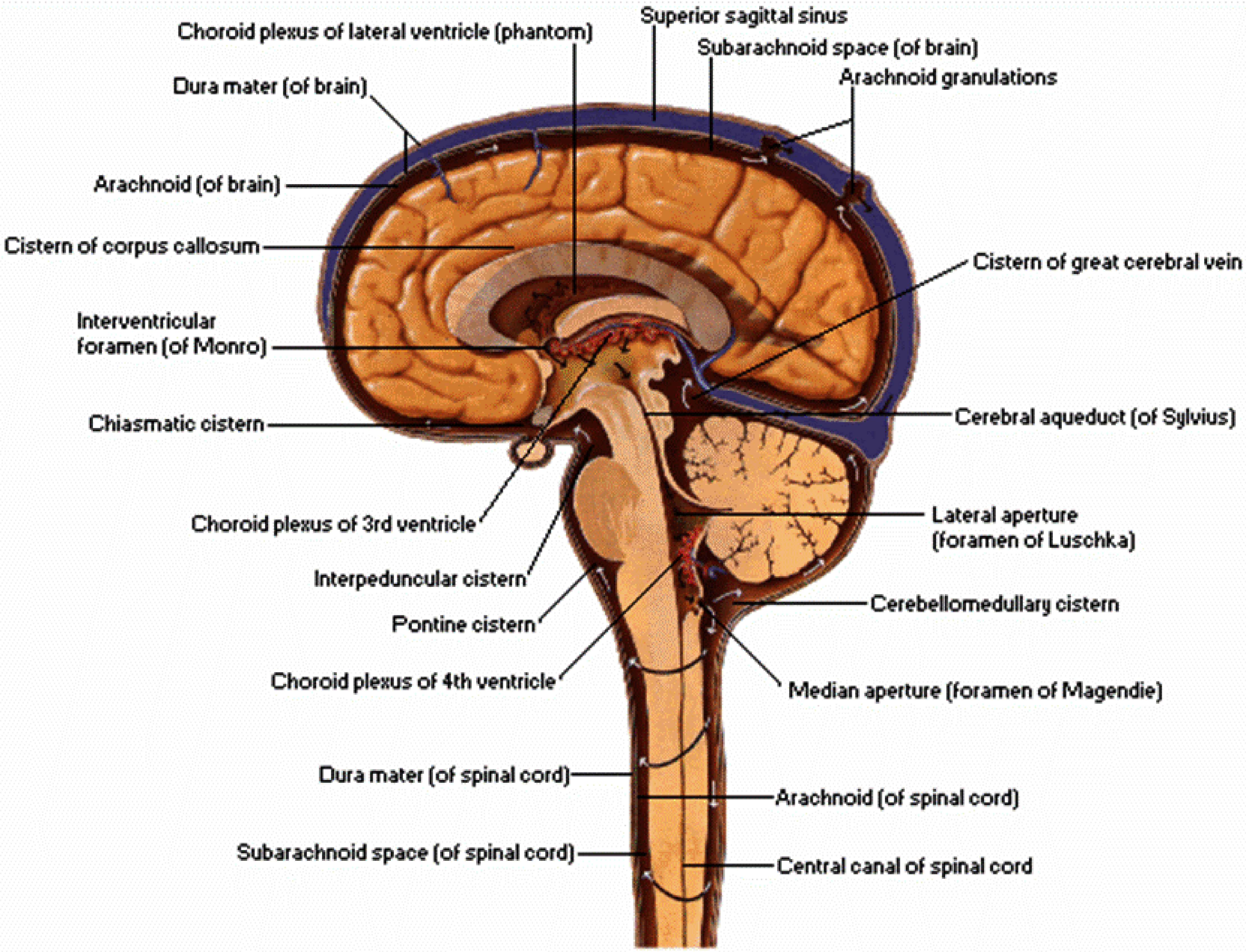


Left Lateral Phantom View



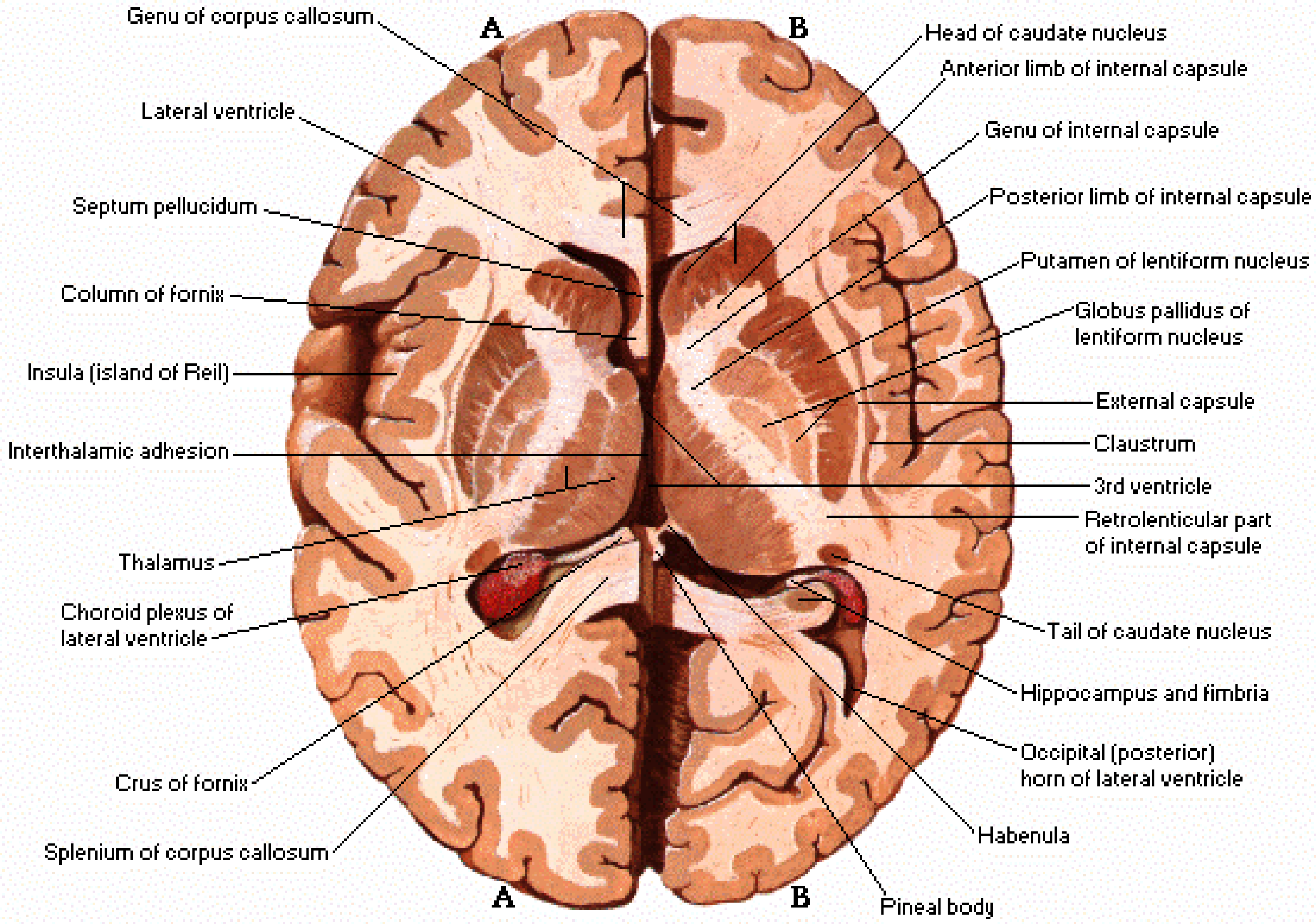
Coronal Section - Posterior View



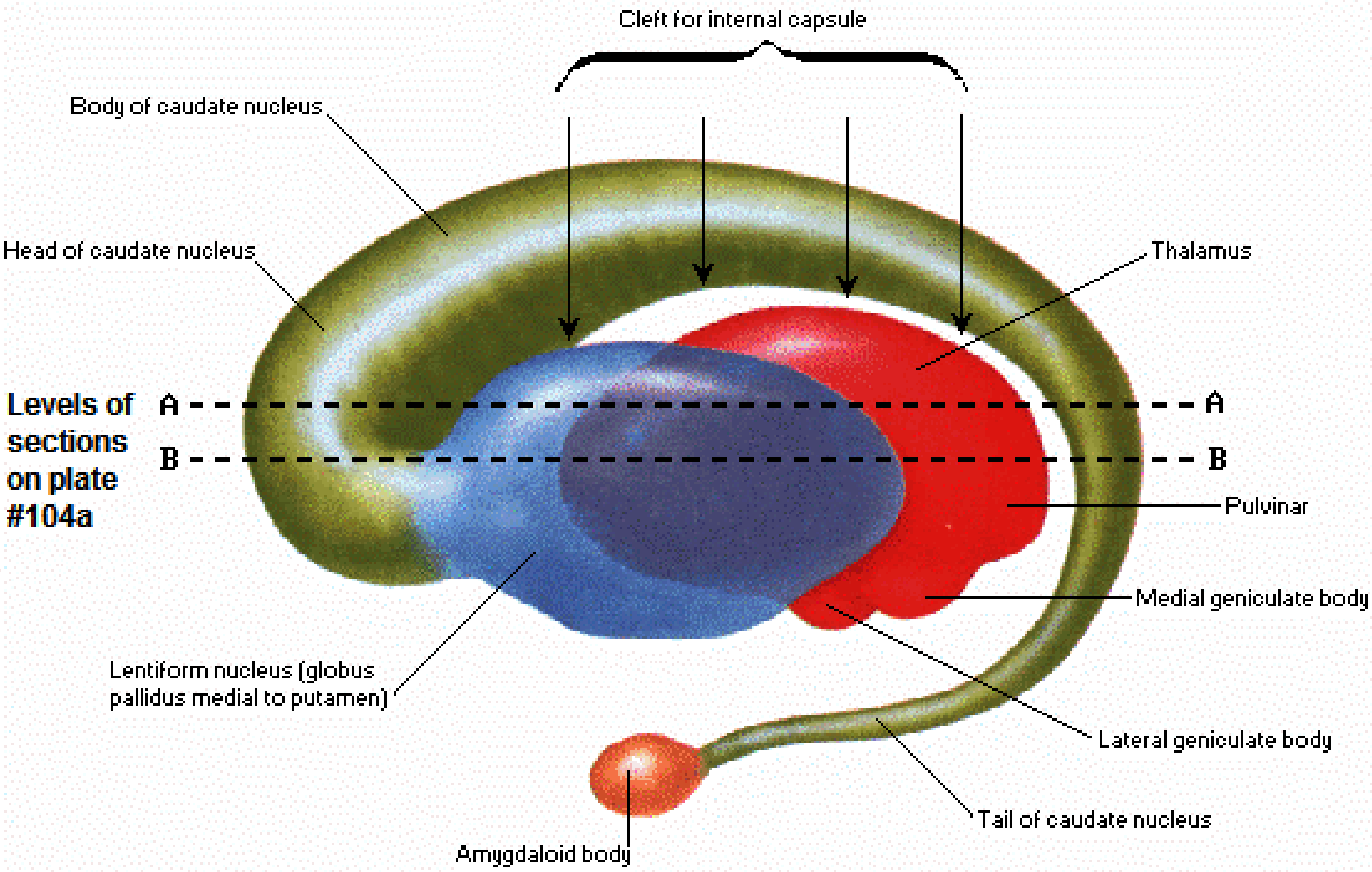


Superior sagittal sinus
Choroid plexus of lateral ventricle (phantom)
Subarachnoid space (of brain)
Arachnoid granulations
Dura mater (of brain)
Arachnoid (of brain)
Cistern of corpus callosum
Cistern of great cerebral vein
Interventricular foramen (of Monro)
Chiasmatic cistern
Cerebral aqueduct (of Sylvius)
Choroid plexus of 3rd ventricle
Lateral aperture (foramen of Luschka)
Interpeduncular cistern
Cerebellomedullary cistern
Pontine cistern
Choroid plexus of 4th ventricle
Median aperture (foramen of Magendie)
Dura mater (of spinal cord)
Arachnoid (of spinal cord)
Subarachnoid space (of spinal cord)
Central canal of spinal cord

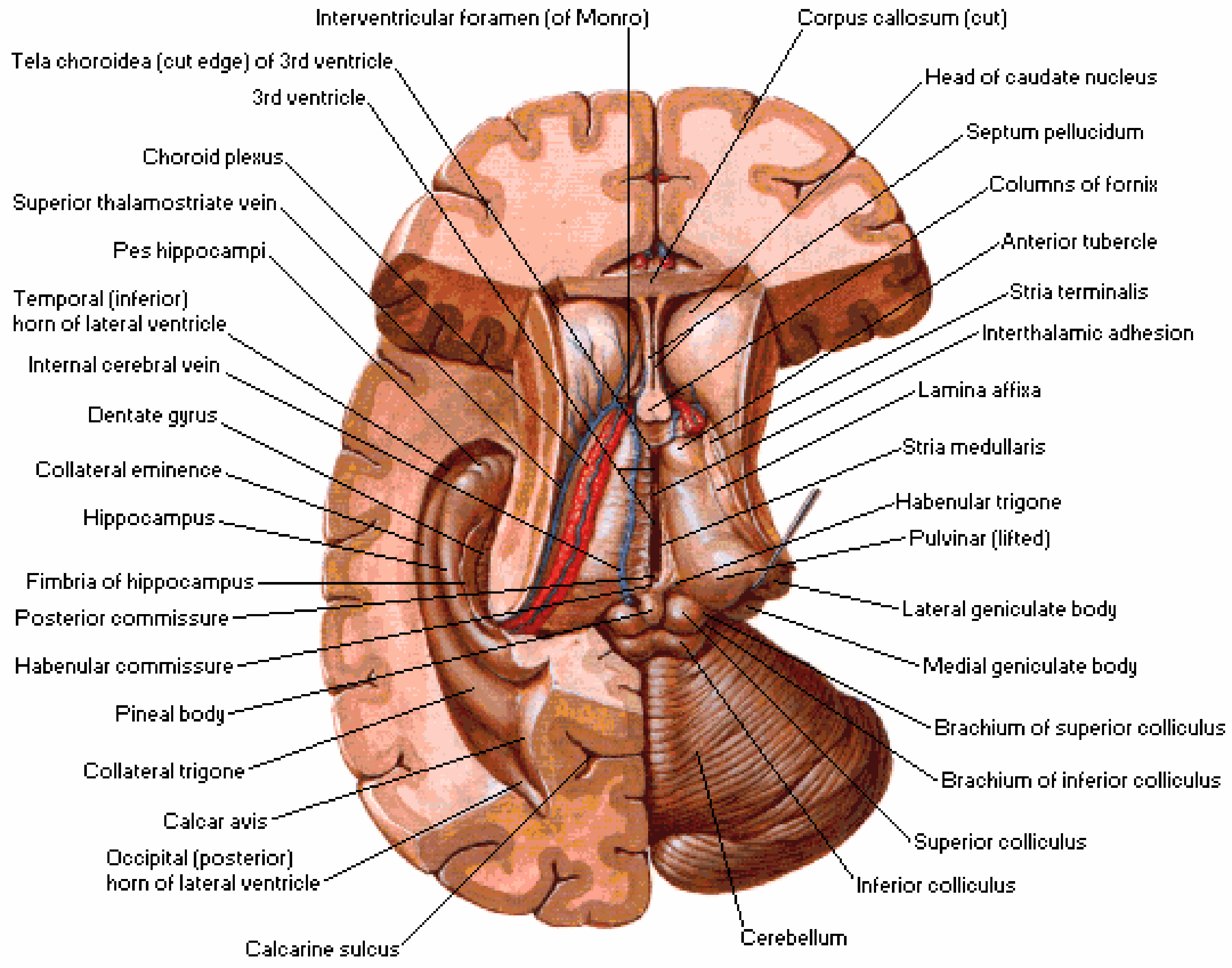
Horizontal Sections through Cerebrum



Left Lateral View

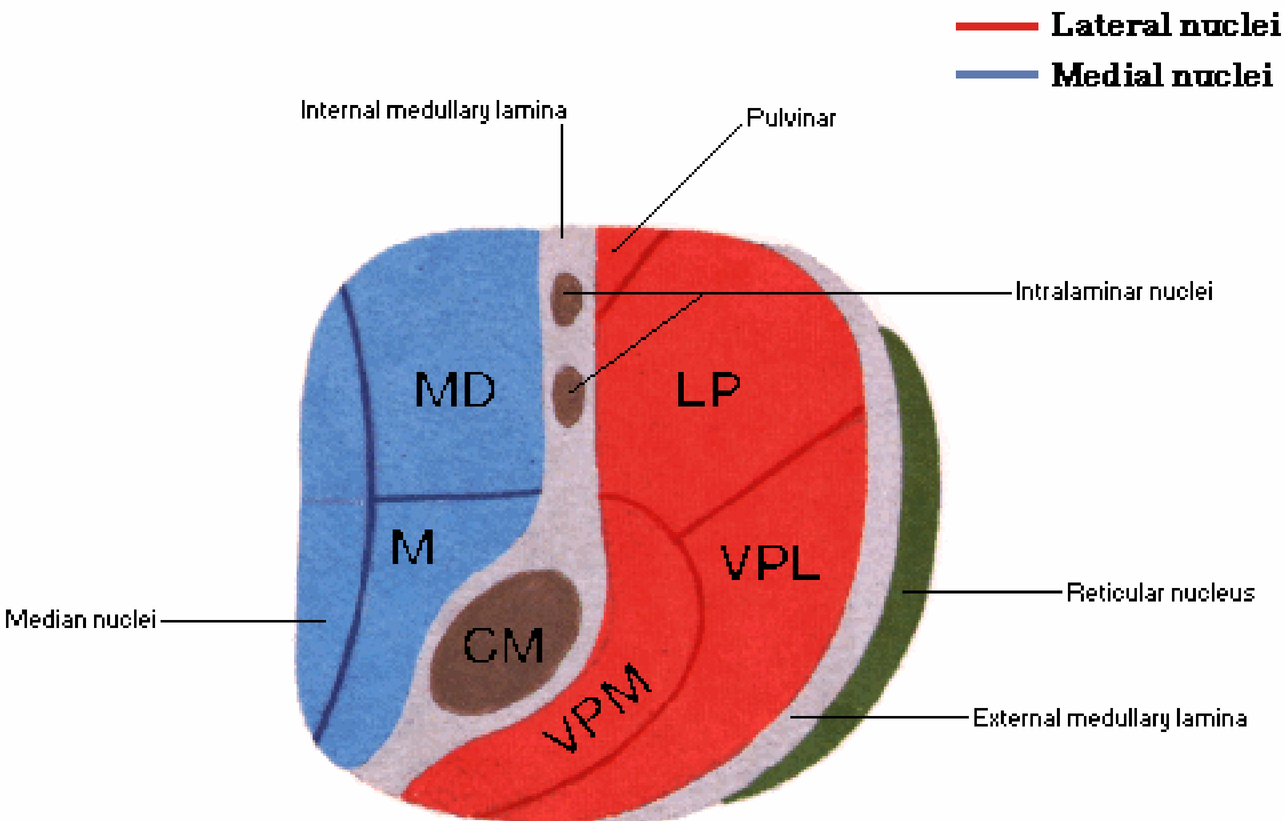


Interrelationship of thalamus, lentiform nucleus, caudate nucleus and amygdaloid body



Interventricular foramen (of Monro)
Corpus callosum (cut)
Tela choroidea (cut edge) of 3rd ventricle
Head of caudate nucleus
3rd ventricle
Septum pellucidum
Choroid plexus
Columns of fornix
Superior thalamostriate vein
Anterior tubercle
Pes hippocampi
Stria terminalis
Temporal (inferior) horn of lateral ventricle
Interthalamic adhesion
Internal cerebral vein
Lamina affixa
Dentate gyrus
Stria medullaris
Collateral eminence
Habenular trigone
Hippocampus
Pulvinar (lifted)
Fimbria of hippocampus
Lateral geniculate body
Posterior commissure
Habenular commissure
Medial geniculate body
Pineal body
Brachium of superior colliculus
Collateral trigone
Brachium of inferior colliculus
Calcar avis
Superior colliculus
Occipital (posterior) horn of lateral ventricle
Inferior colliculus
Cerebellum
Calcarine sulcus

Schematic Section

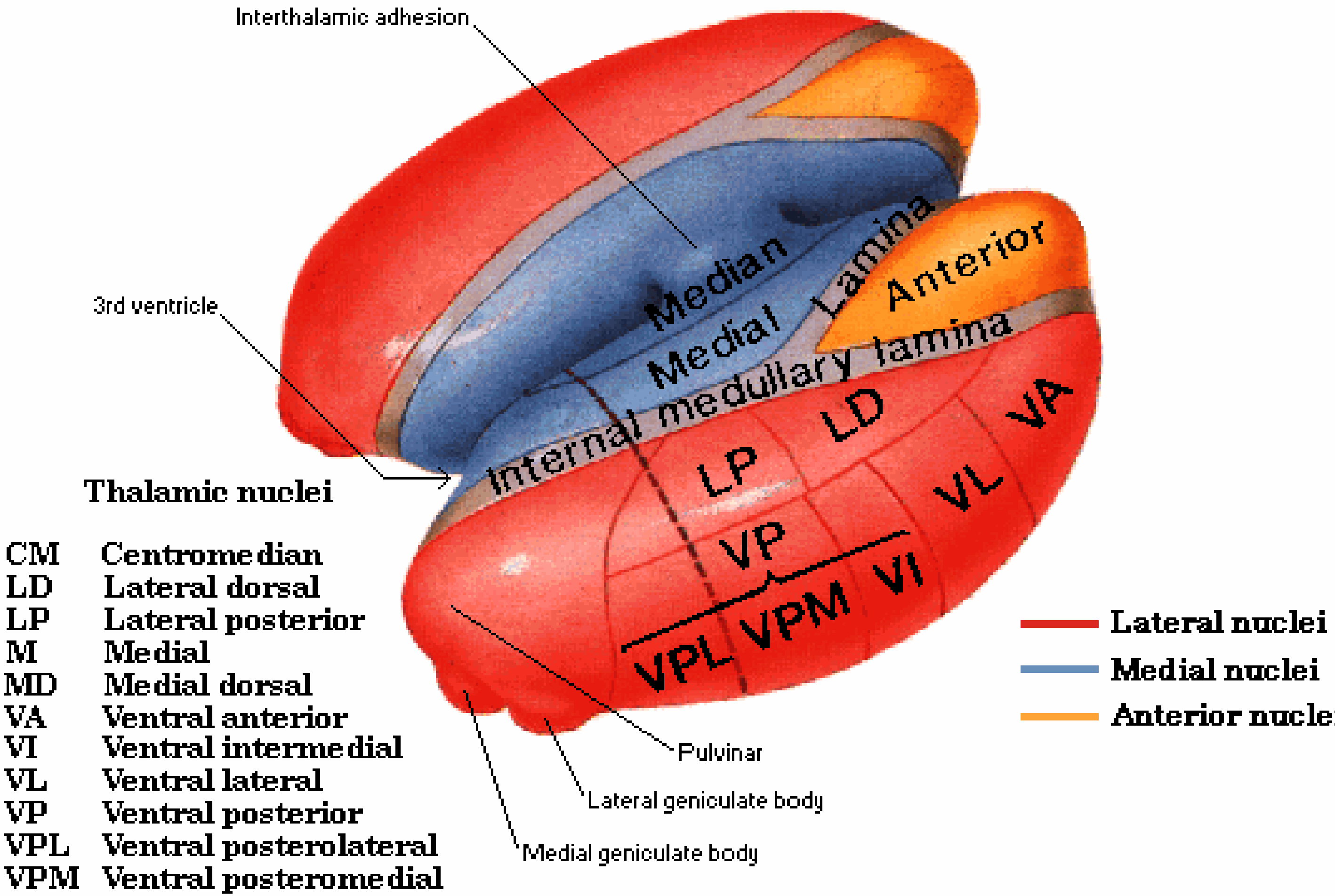


Thalamic nuclei

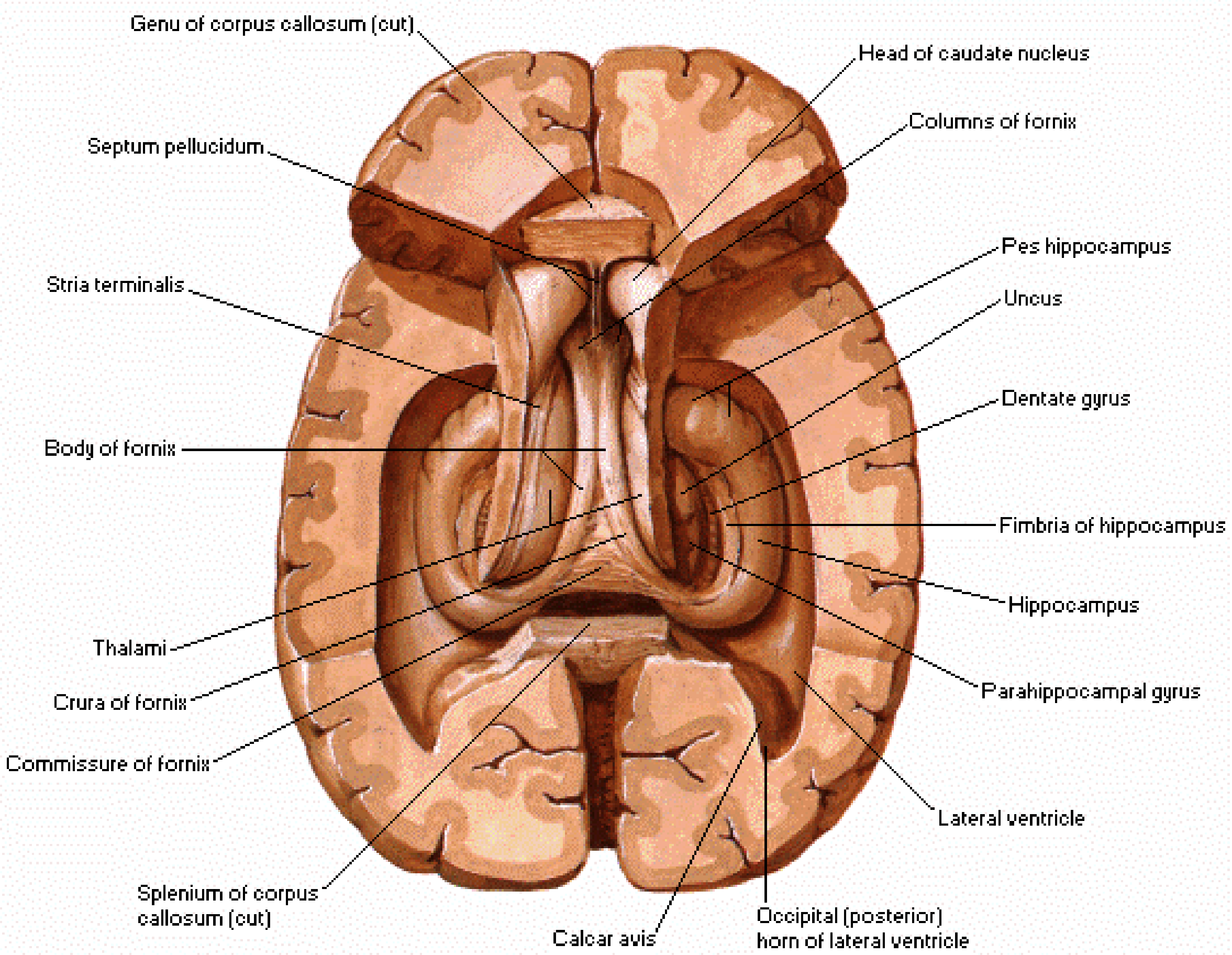
CM	Centromedian	VA	Ventral anterior
LD	Lateral dorsal	VI	Ventral intermedial
LP	Lateral posterior	VL	Ventral lateral
M	Medial	VP	Ventral posterior
MD	Medial dorsal	VPL	Ventral posterolateral
		VPM	Ventral posteromedial

Schematic section through thalamus (at level of broken line shown in plate #105C

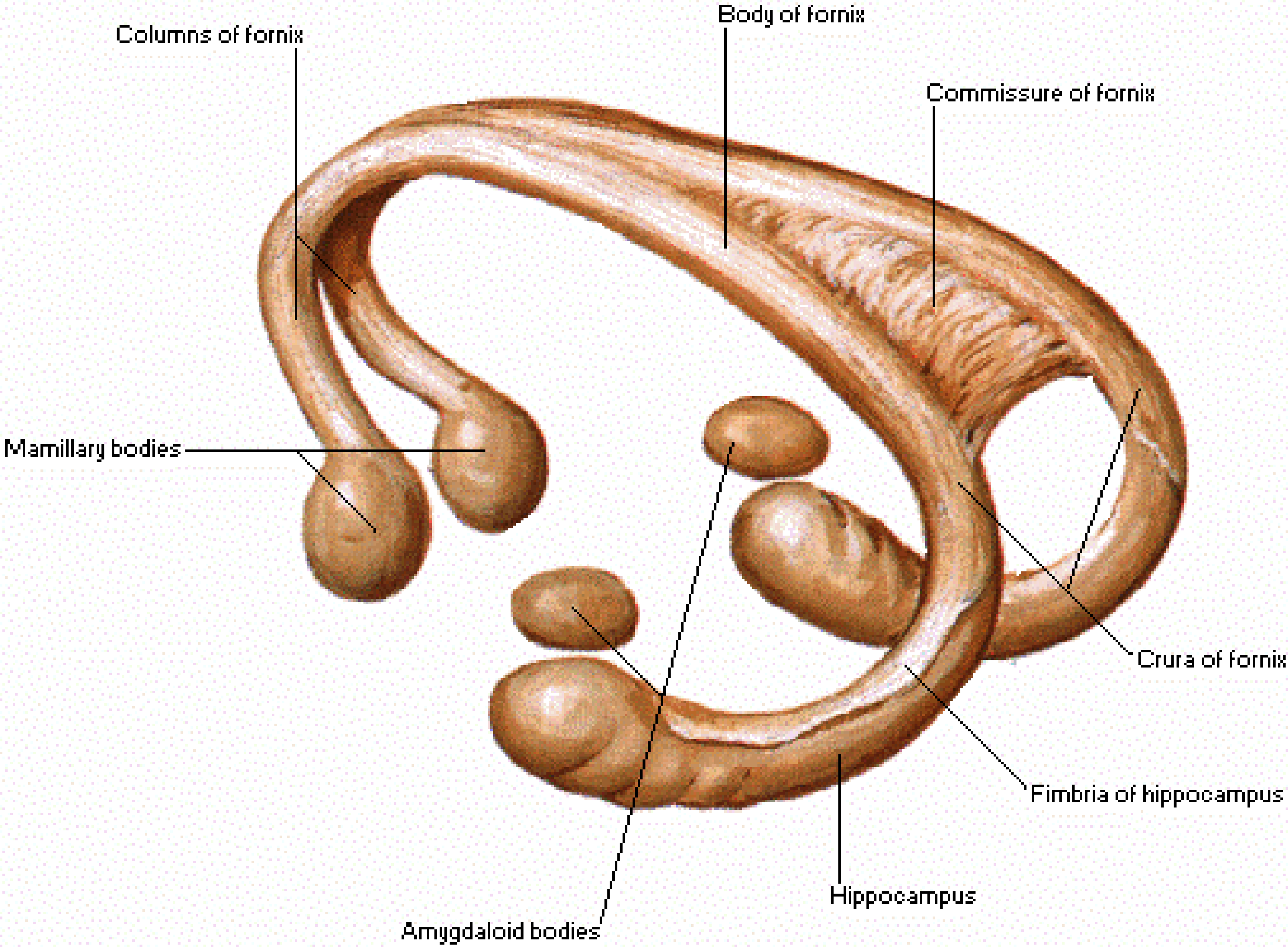
Schematic Representation of Thalamus



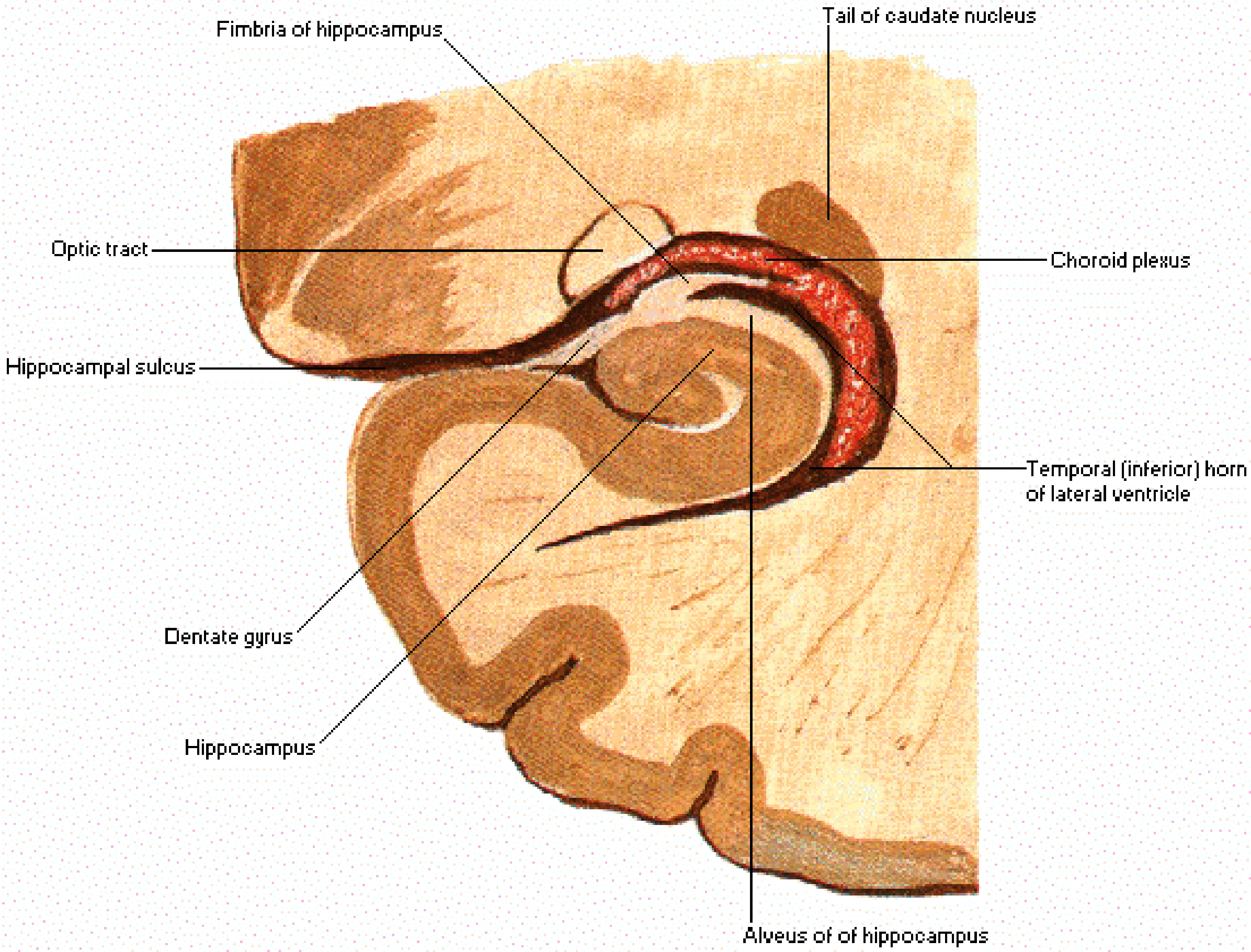
Superior Dissection



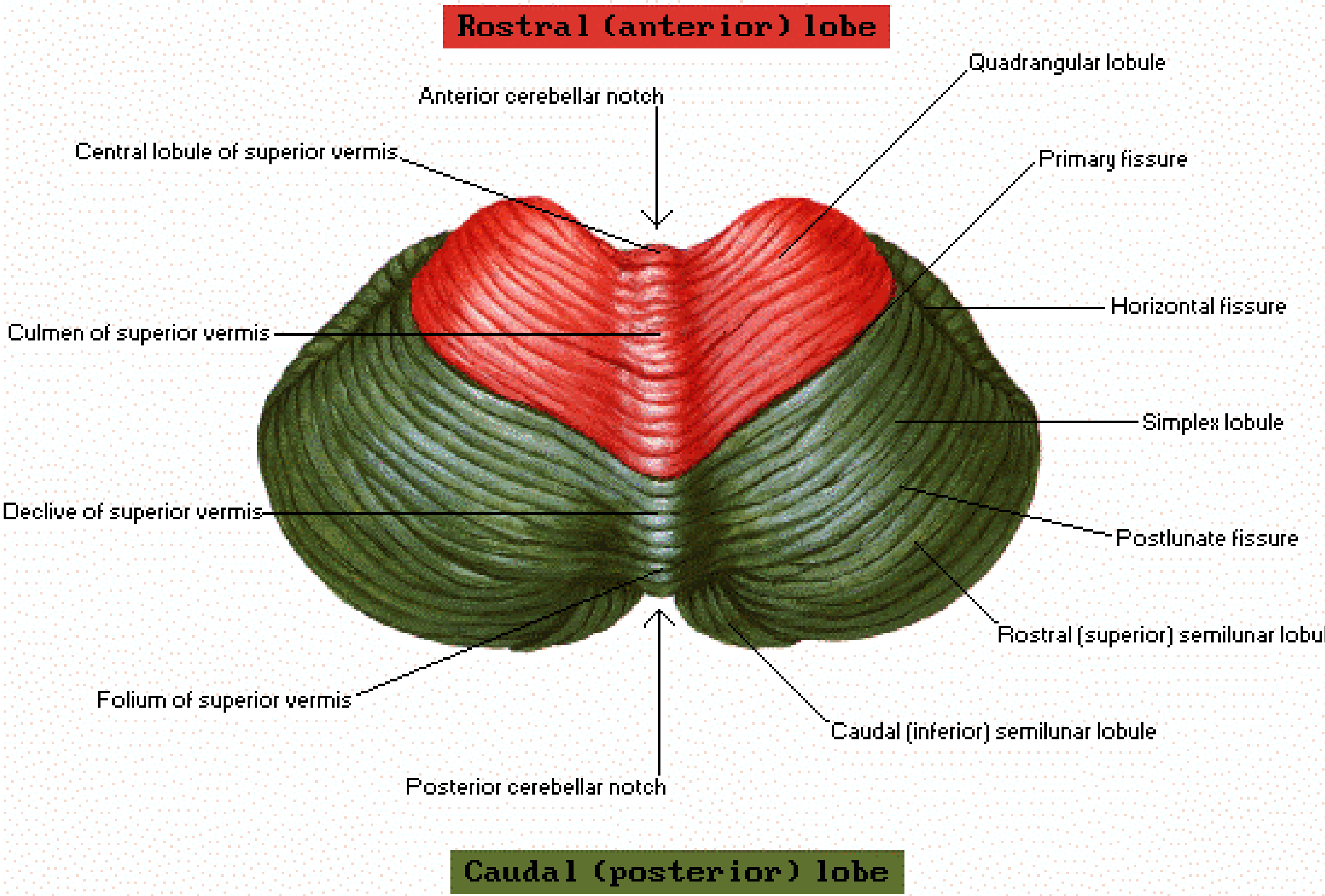
Schema of Fornix



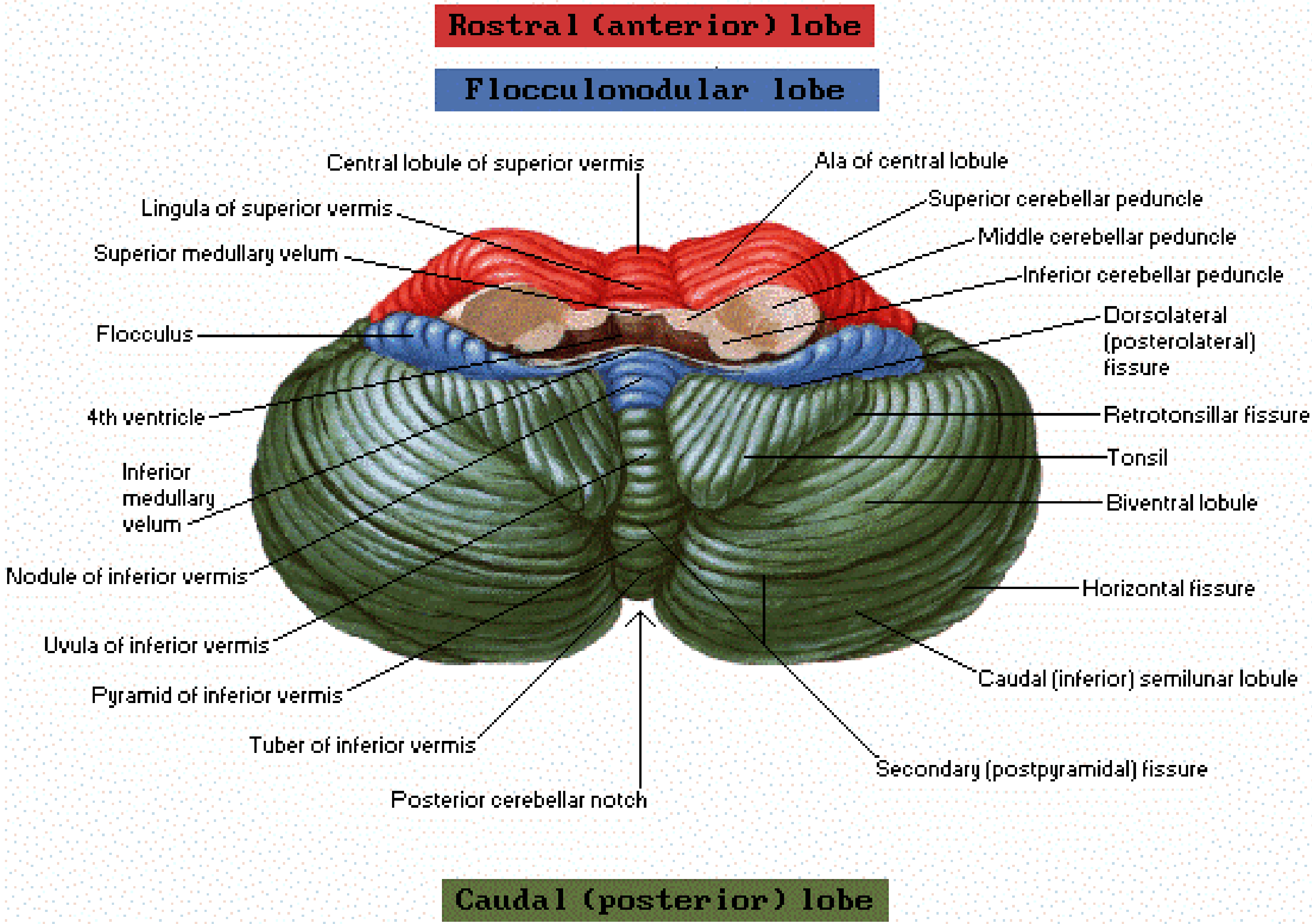
Coronal Section - Posterior View



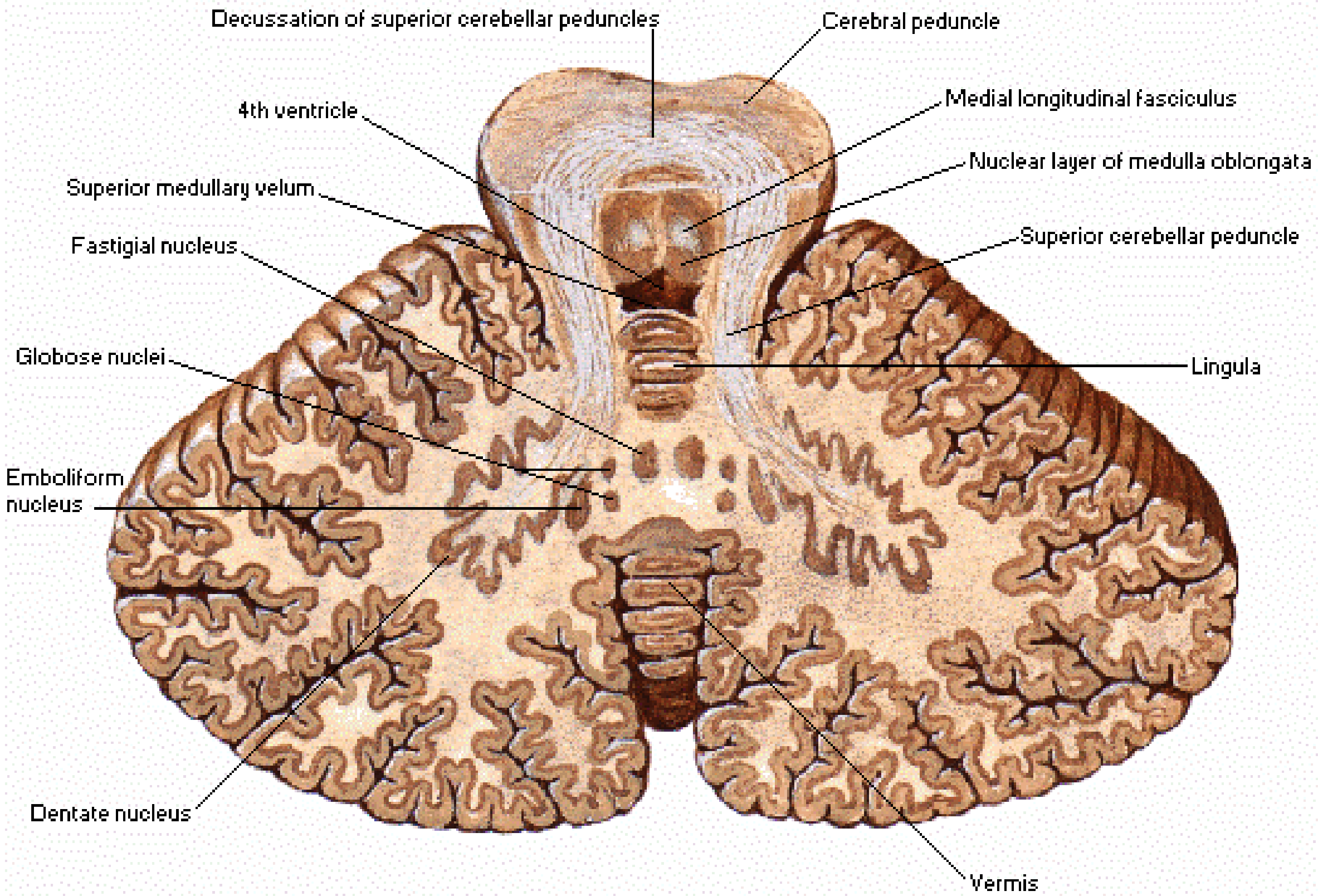
Superior Surface



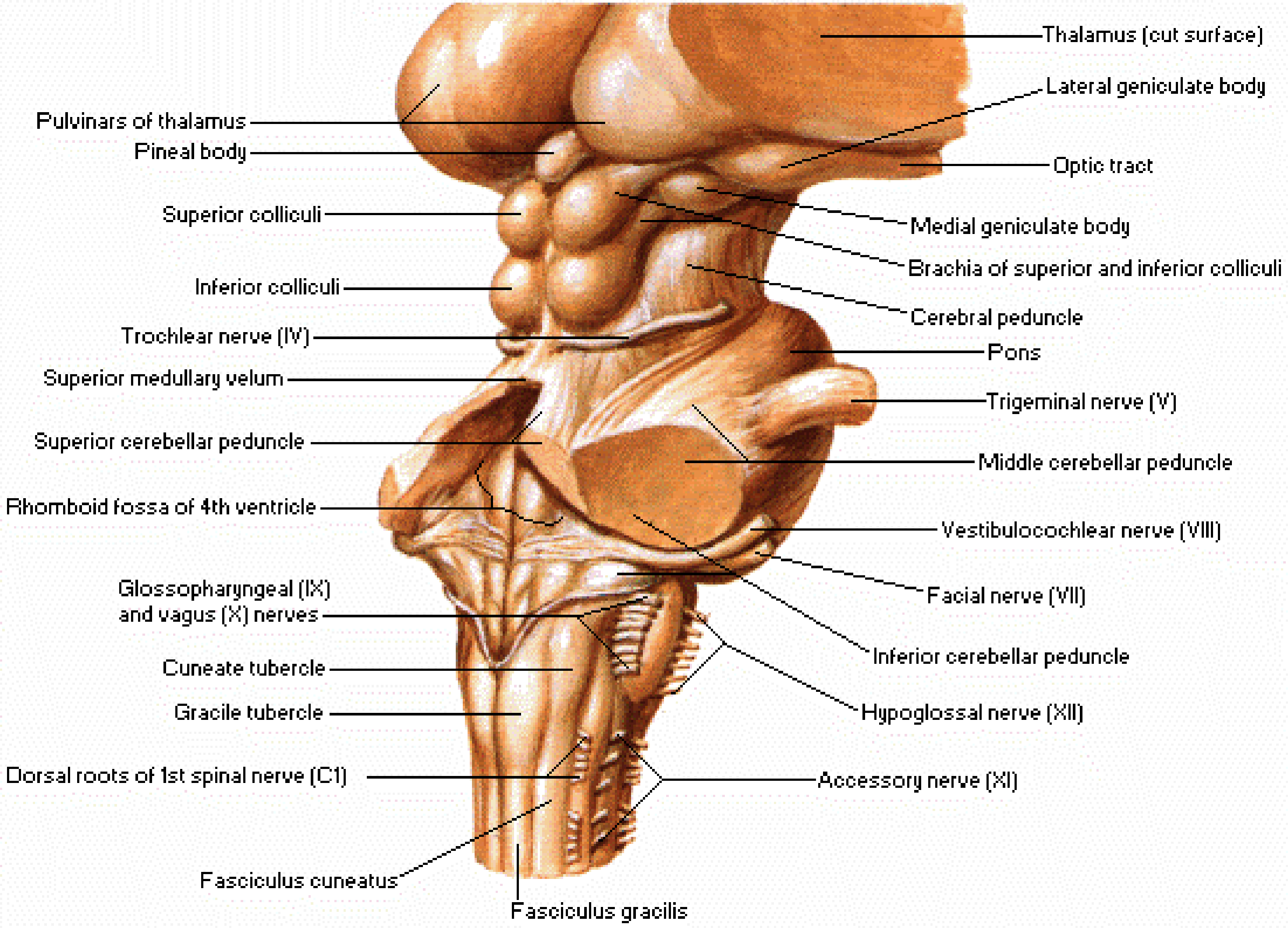
Inferior Surface



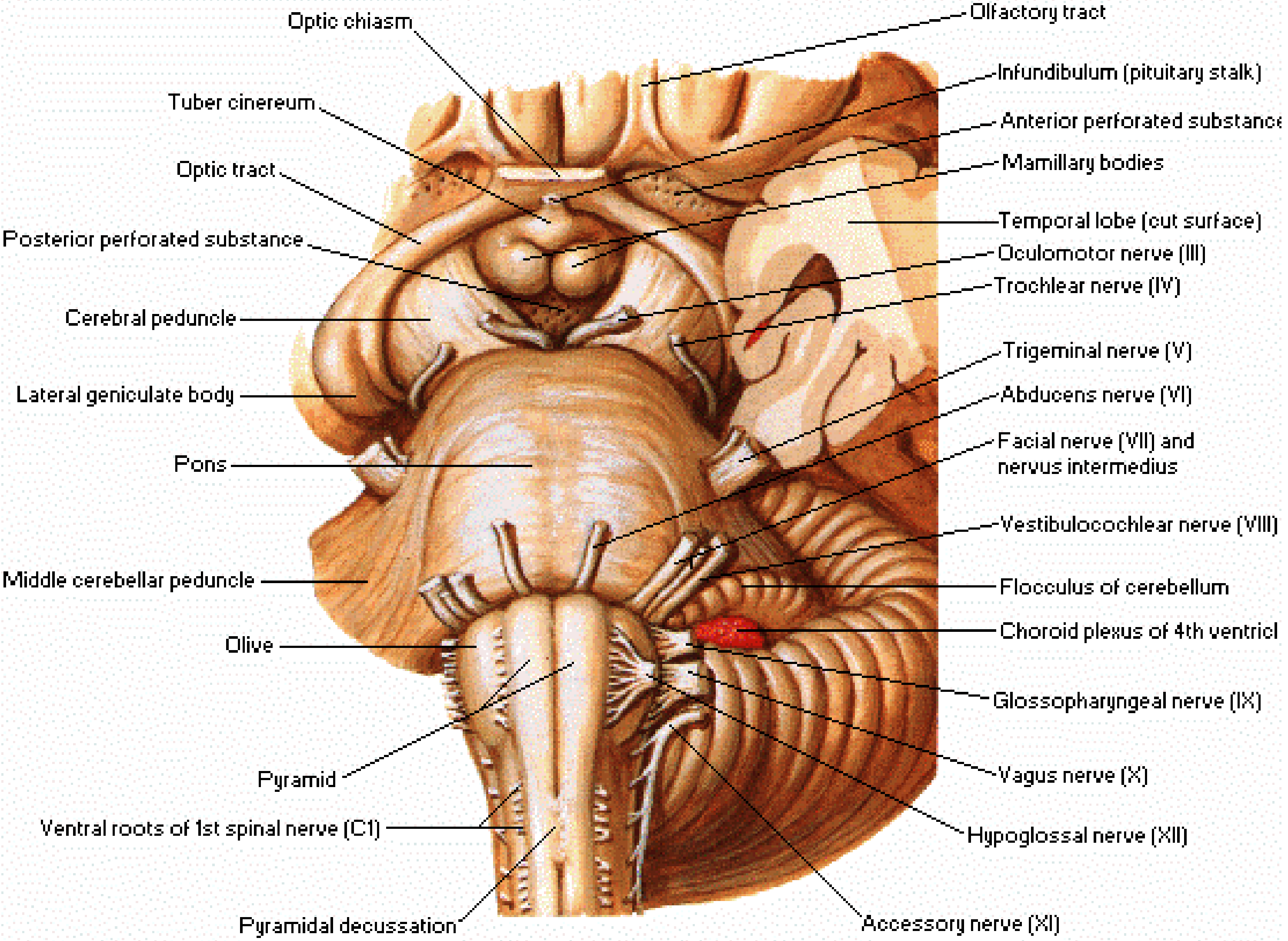
Section in Plane of Superior Cerebellar Peduncle



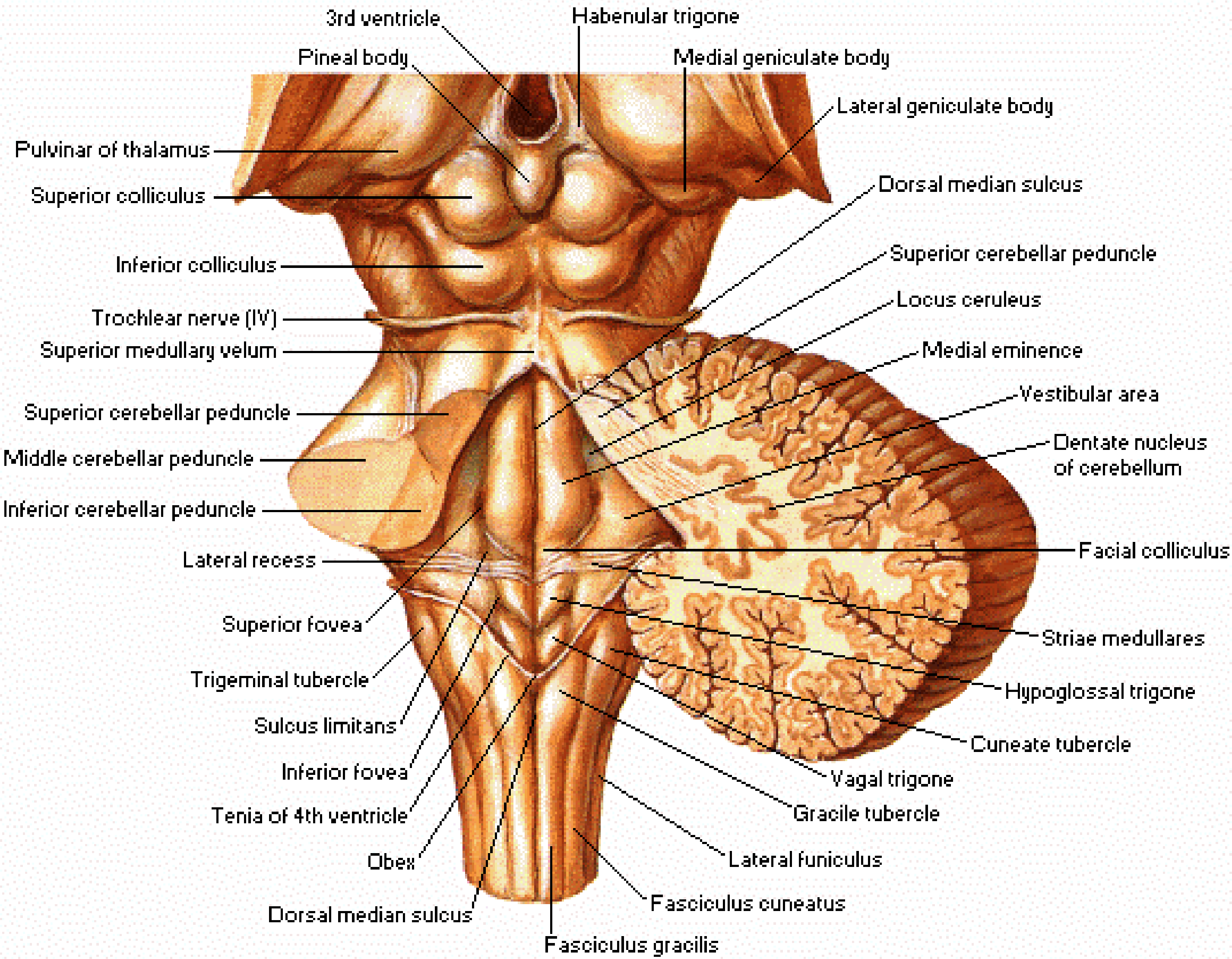
Posterolateral View



Anteriorinferior View

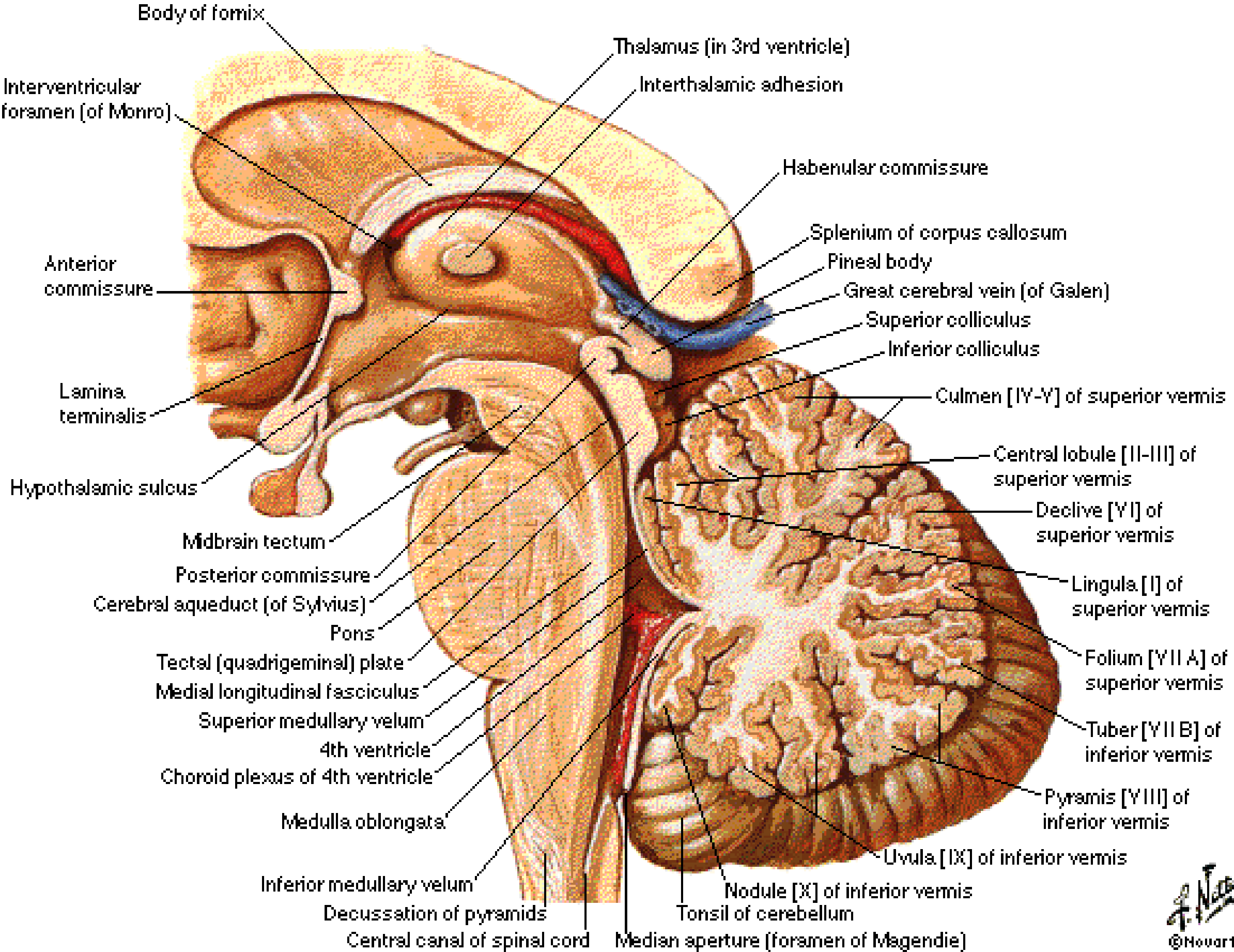


Posterior View

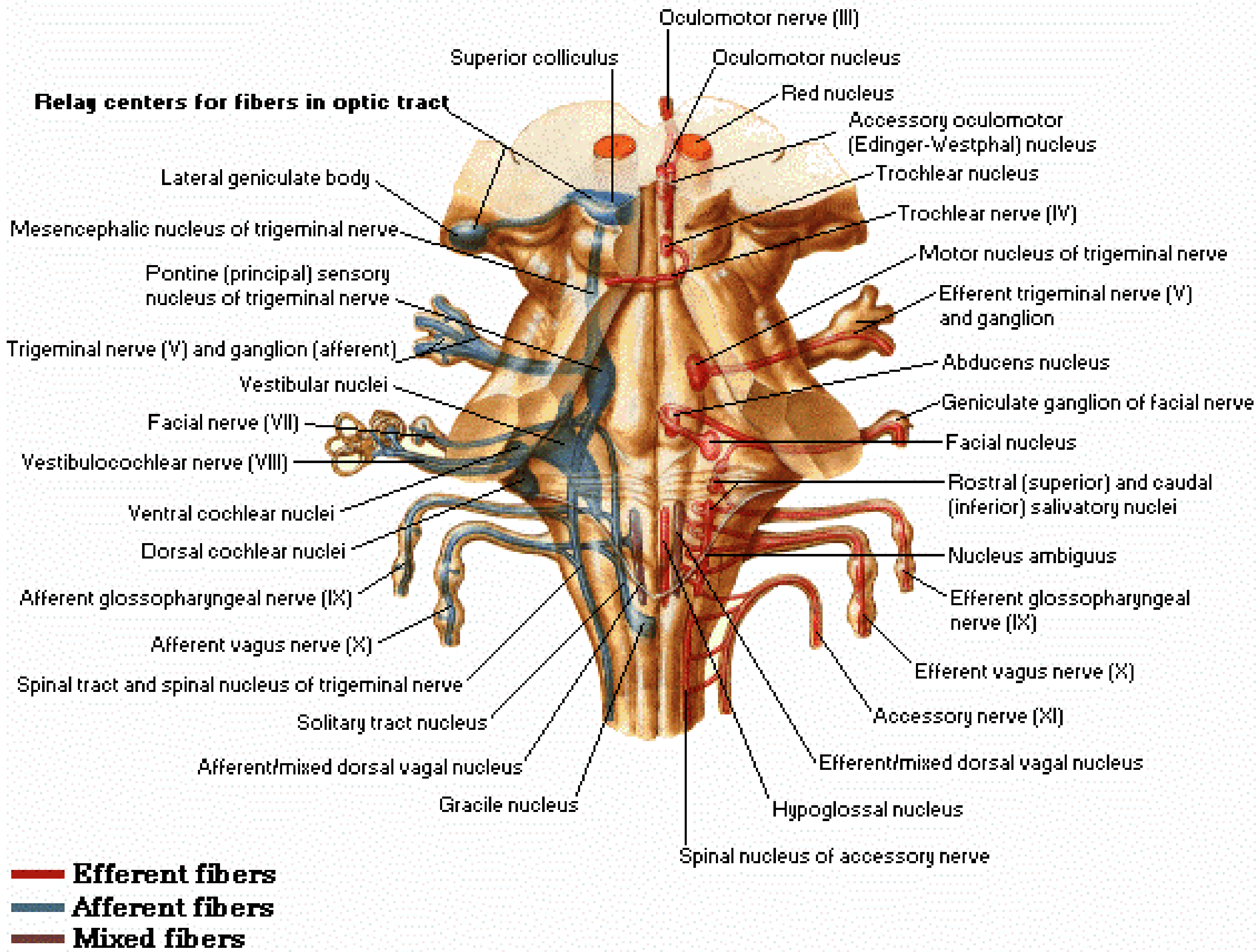


Fourth Ventricle and Cerebellum

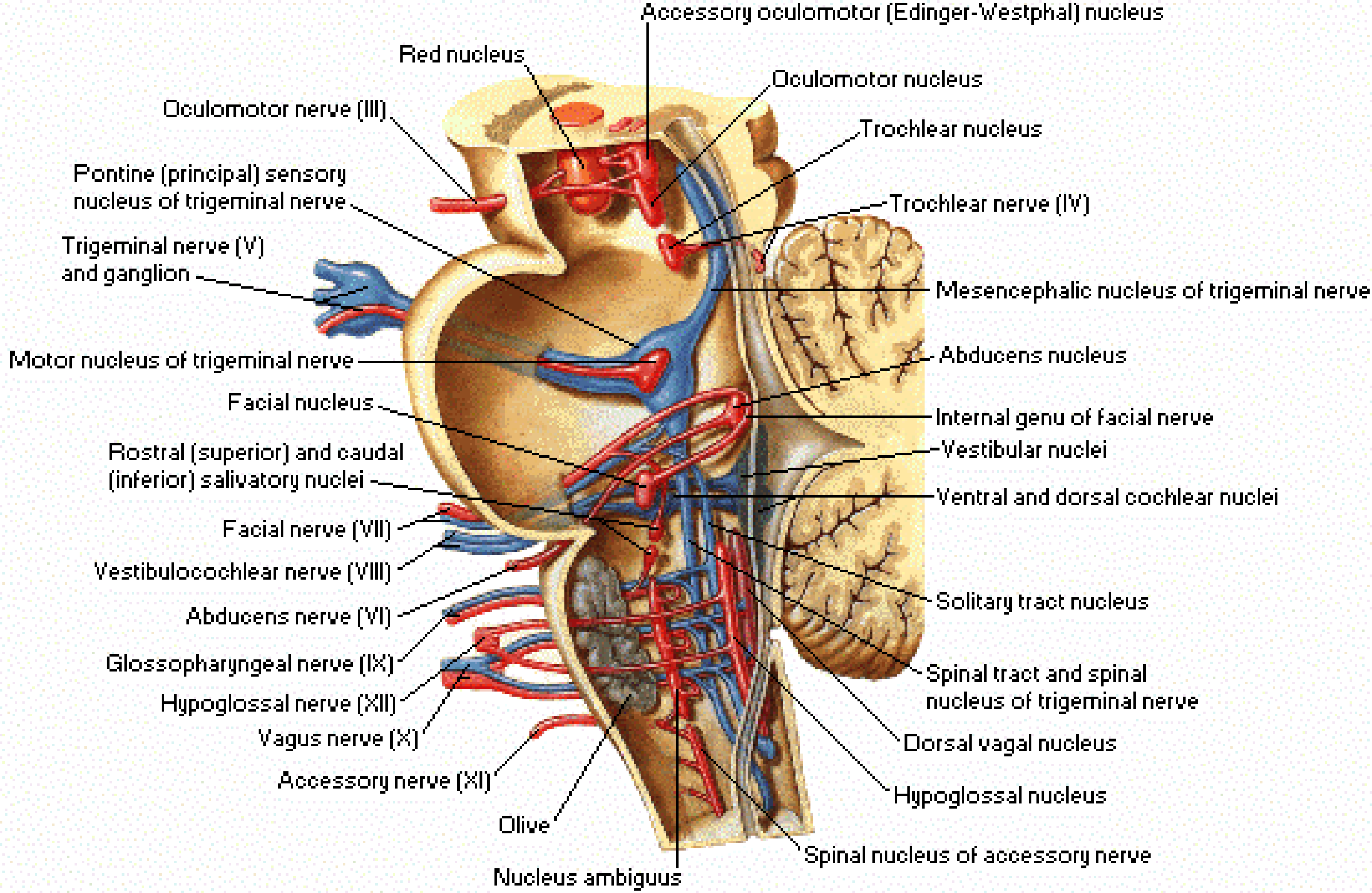
Median Sagittal Section



Schema - Posterior Phantom View

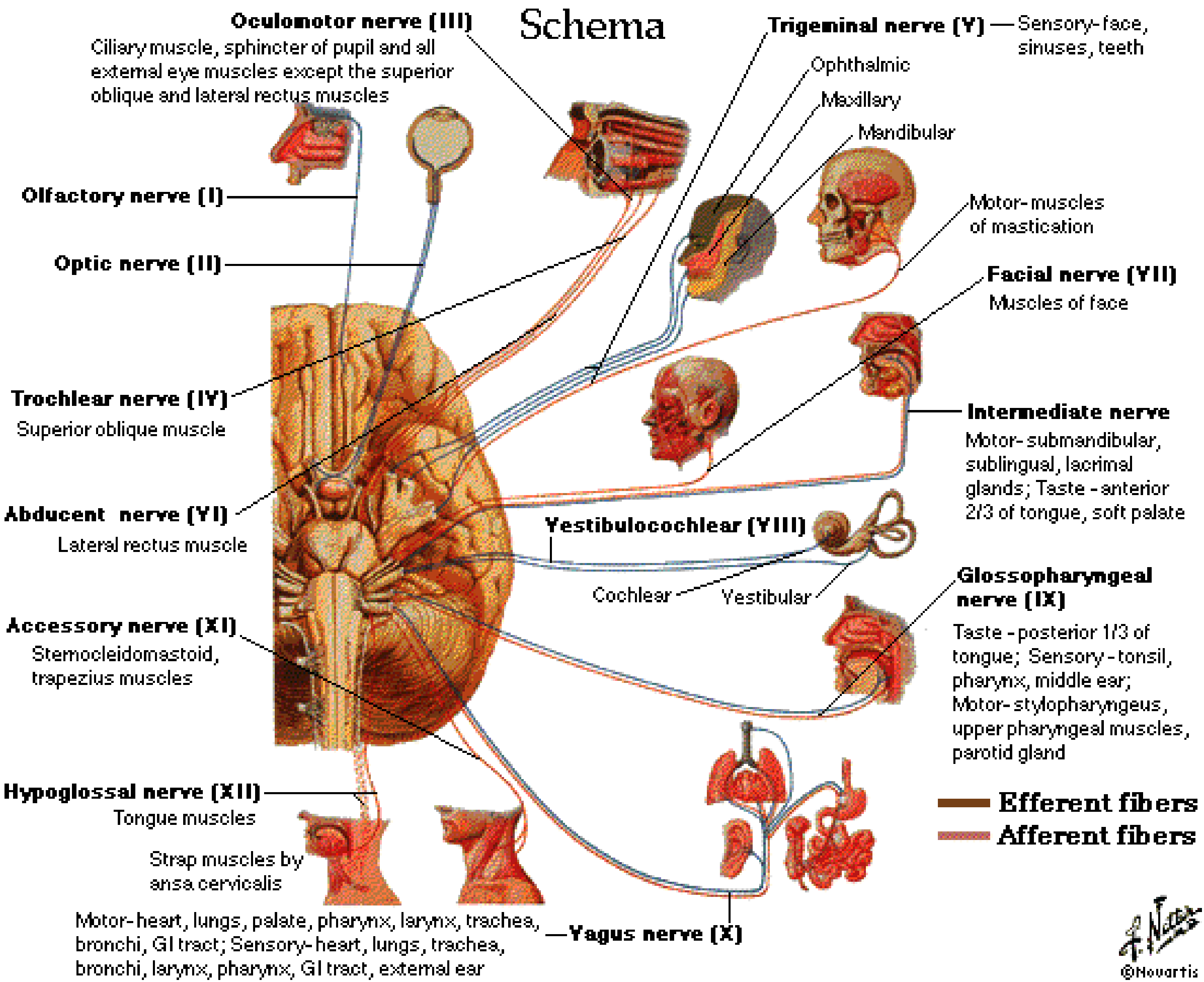


Schema - Medial Dissection

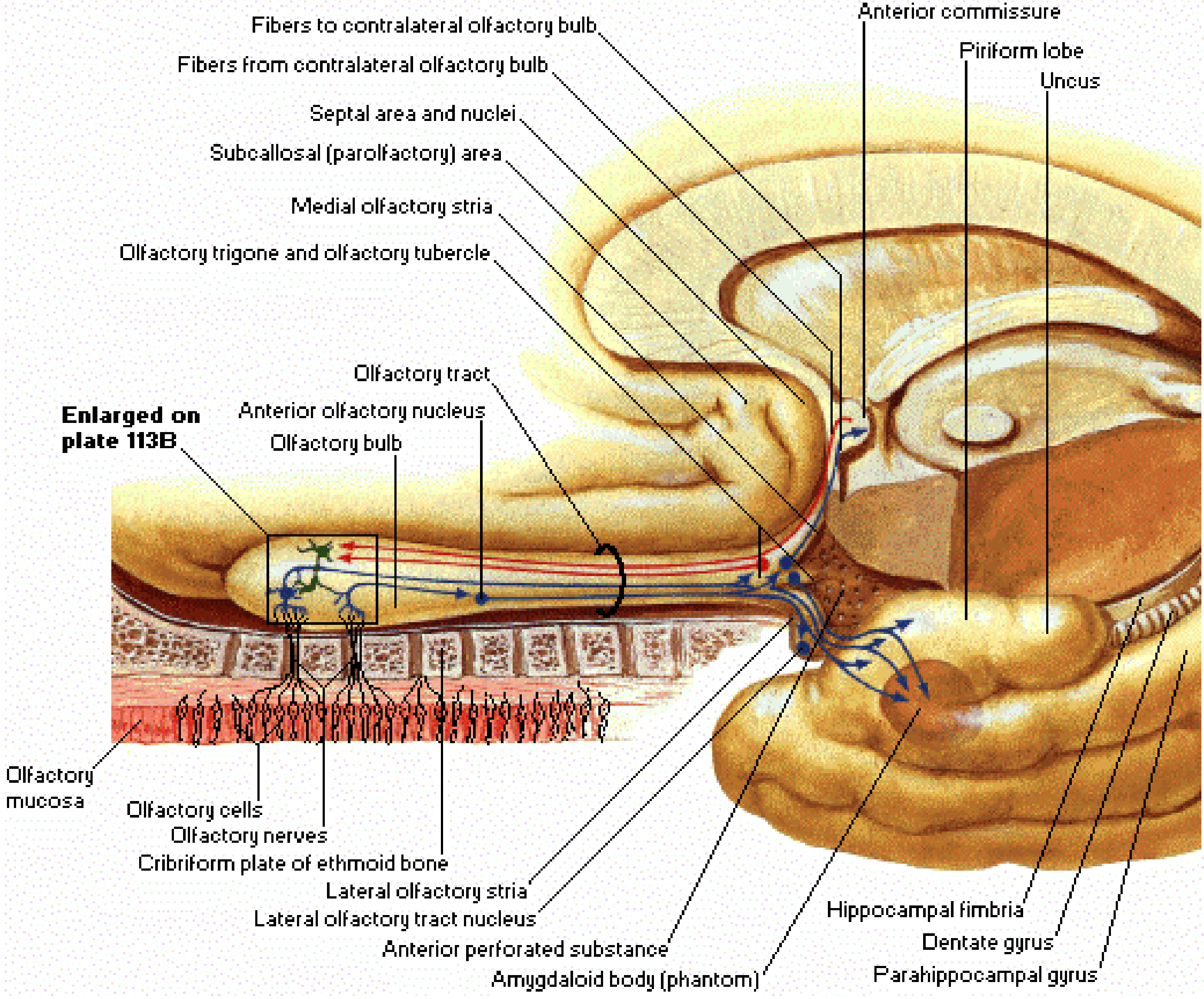


Efferent fibers
Afferent fibers
Mixed fibers

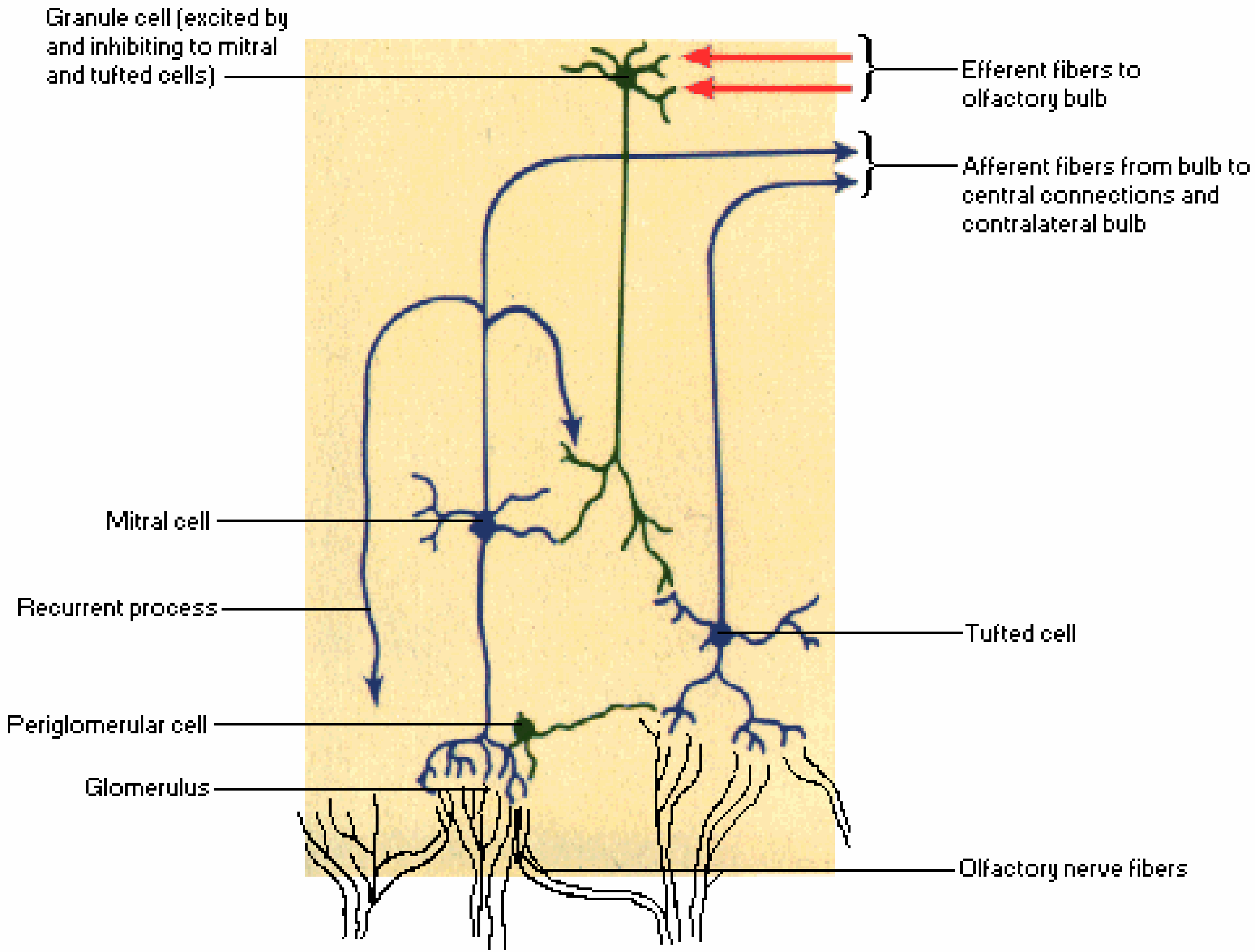
Cranial Nerves [Motor and Sensory Distribution]



Schema

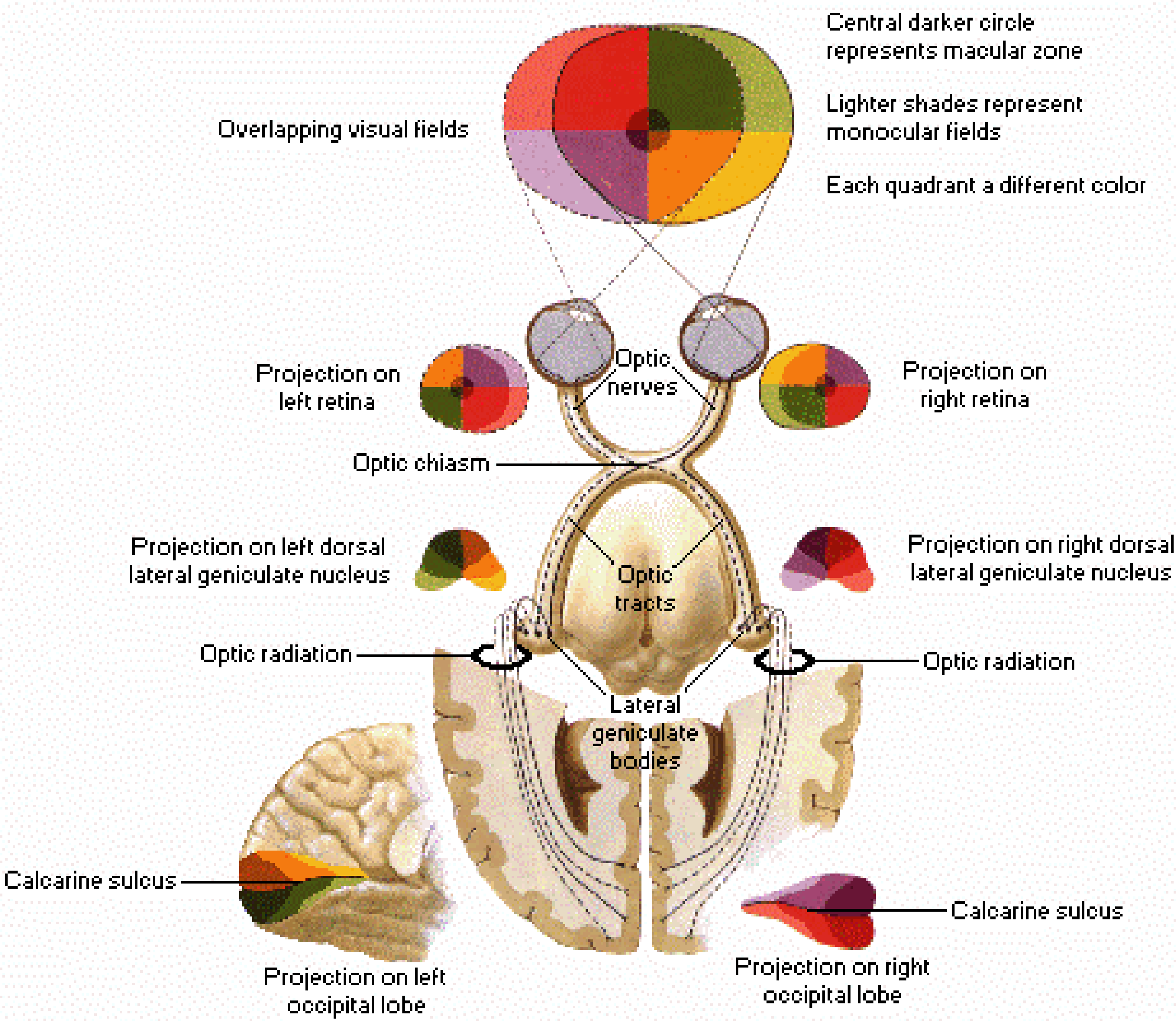


Fibers to contralateral olfactory bulb
Fibers from contralateral olfactory bulb
Septal area and nuclei
Subcallosal (parolfactory) area
Medial olfactory stria
Olfactory trigone and olfactory tubercle
Anterior commissure
Piriform lobe
Uncus
Olfactory tract
Anterior olfactory nucleus
Olfactory bulb
Enlarged on plate 113B
Olfactory mucosa
Olfactory cells
Olfactory nerves
Cribriform plate of ethmoid bone
Lateral olfactory stria
Lateral olfactory tract nucleus
Anterior perforated substance
Amygdaloid body (phantom)
Hippocampal fimbria
Dentate gyrus
Parahippocampal gyrus

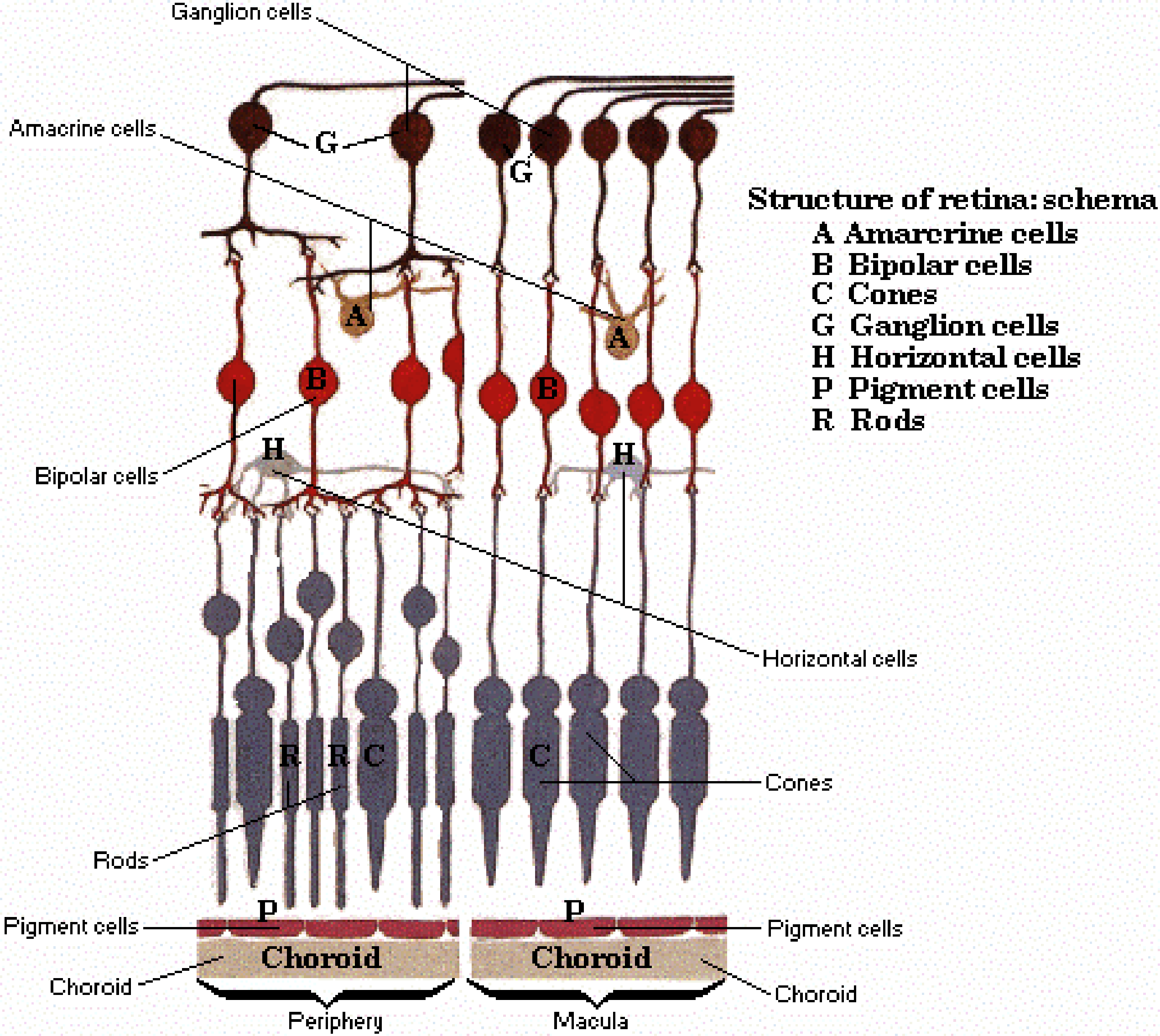


Schema of outlined area on plate 113A

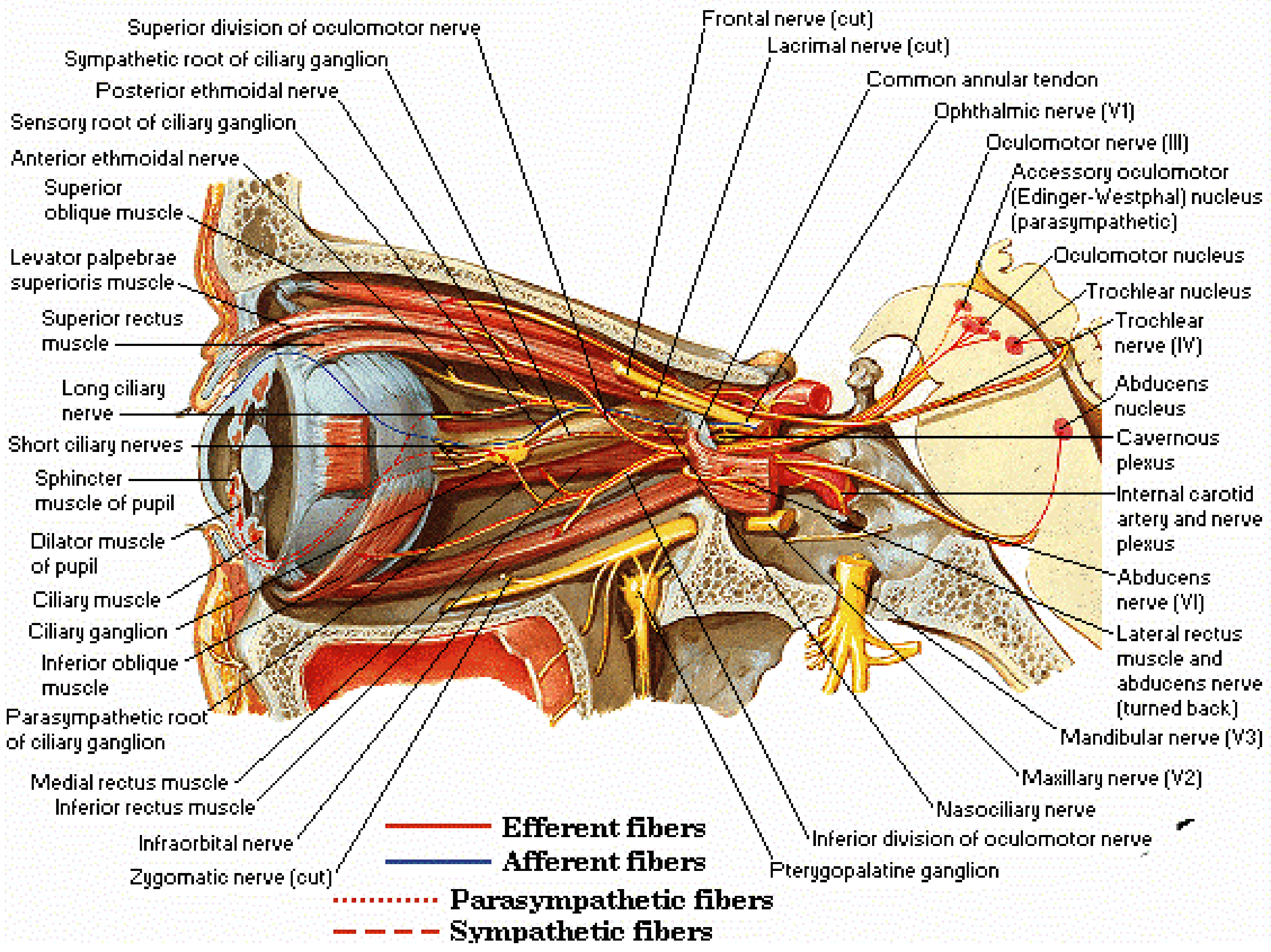
Schema


Central darker circle represents macular zone
Lighter shades represent monocular fields
Each quadrant a different color
Overlapping visual fields
Projection on left retina
Optic nerves
Projection on right retina
Optic chiasm
Projection on left dorsal lateral geniculate nucleus
Optic tracts
Projection on right dorsal lateral geniculate nucleus
Optic radiation
Optic radiation
Lateral geniculate bodies
Calcarine sulcus
Calcarine sulcus
Projection on left occipital lobe
Projection on right occipital lobe

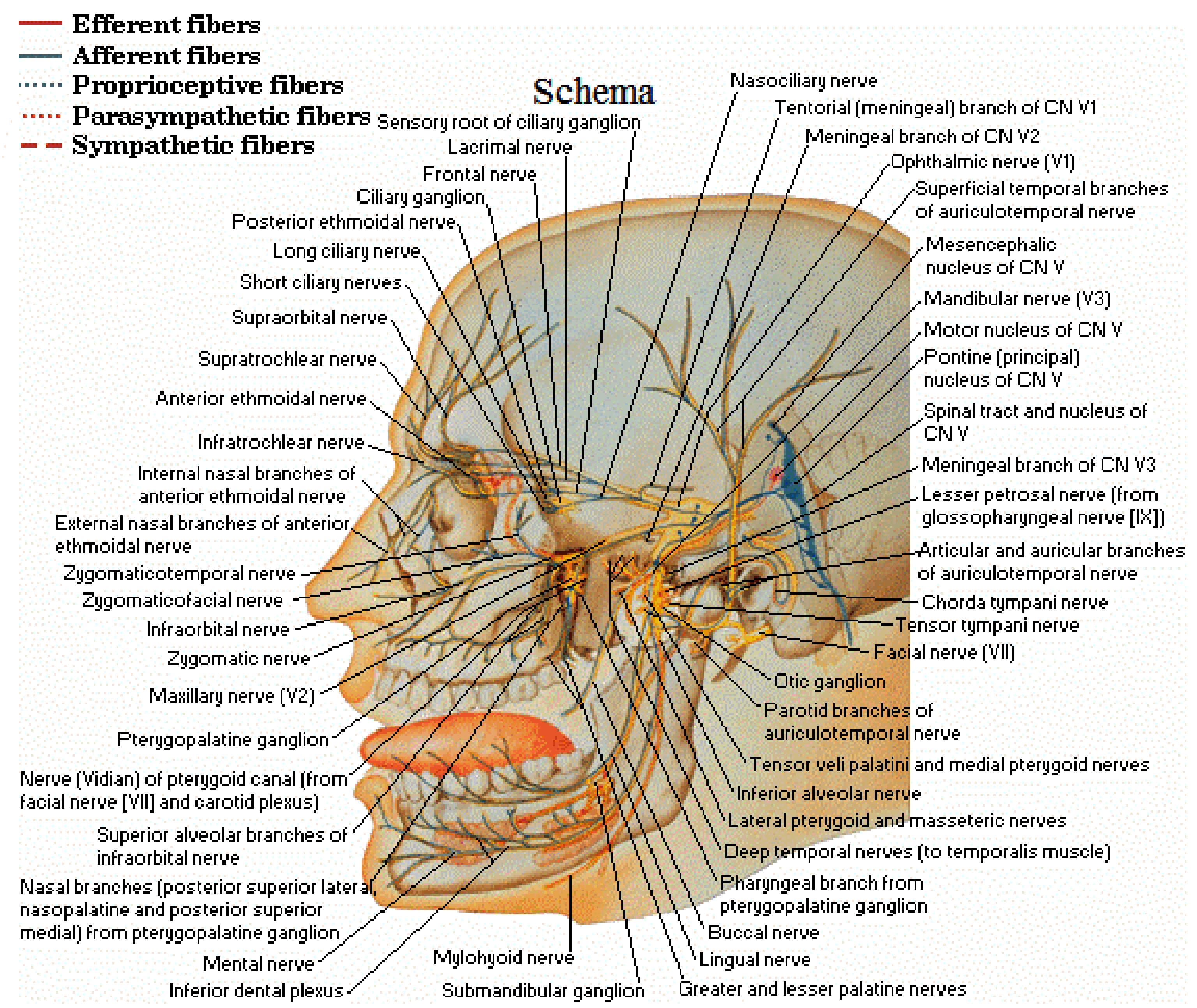
Schema

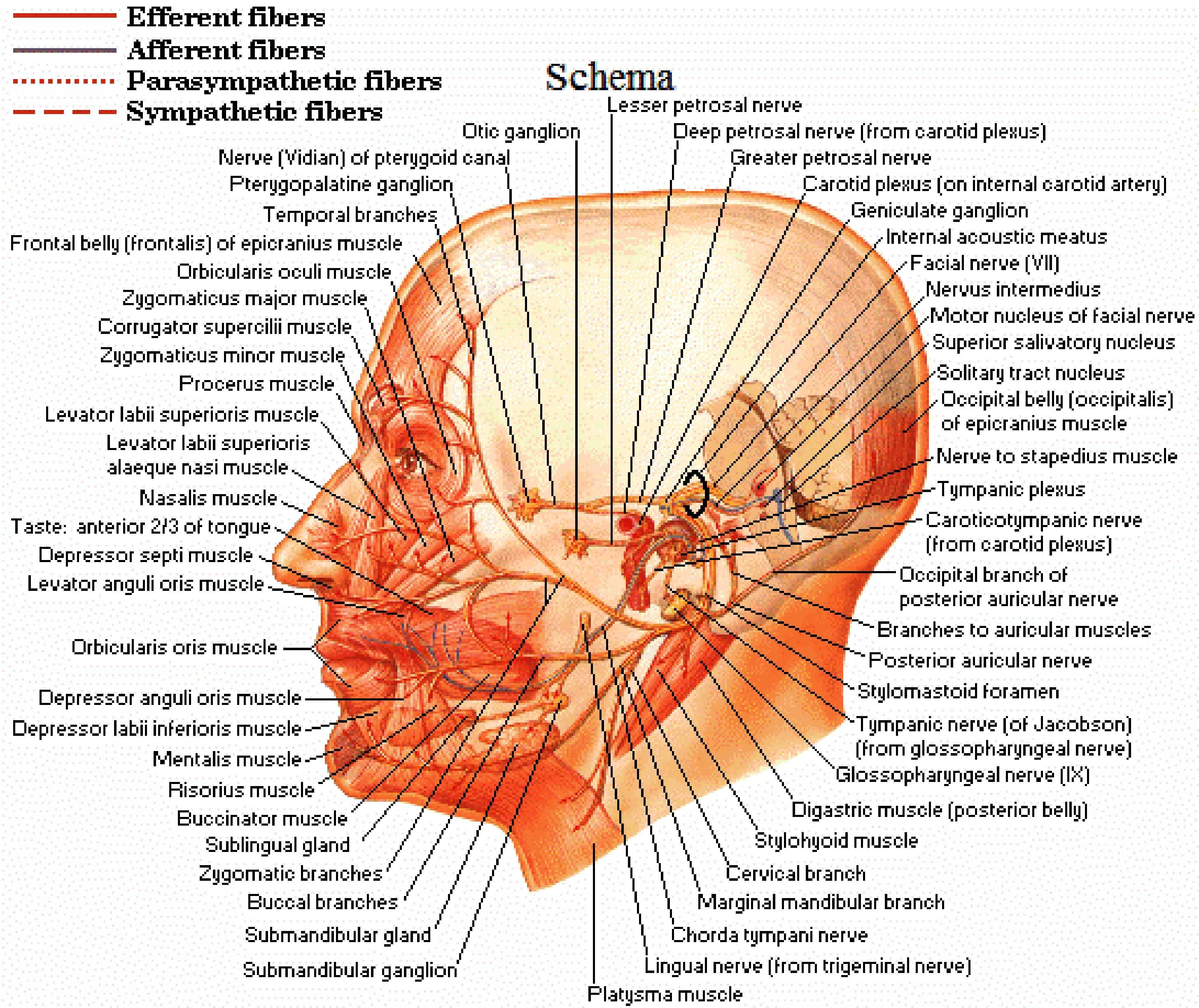

Ganglion cells
Amacrine cells
G
G
A
A
B
B
H
H
Bipolar cells
Horizontal cells
R
R
C
C
Cones
Rods
P
P
Pigment cells
Pigment cells
Choroid
Choroid
Choroid
Choroid
Periphery
Macula
Structure of retina: schema
A Amarcrine cells
B Bipolar cells
C Cones
G Ganglion cells
H Horizontal cells
P Pigment cells
R Rods

Schema

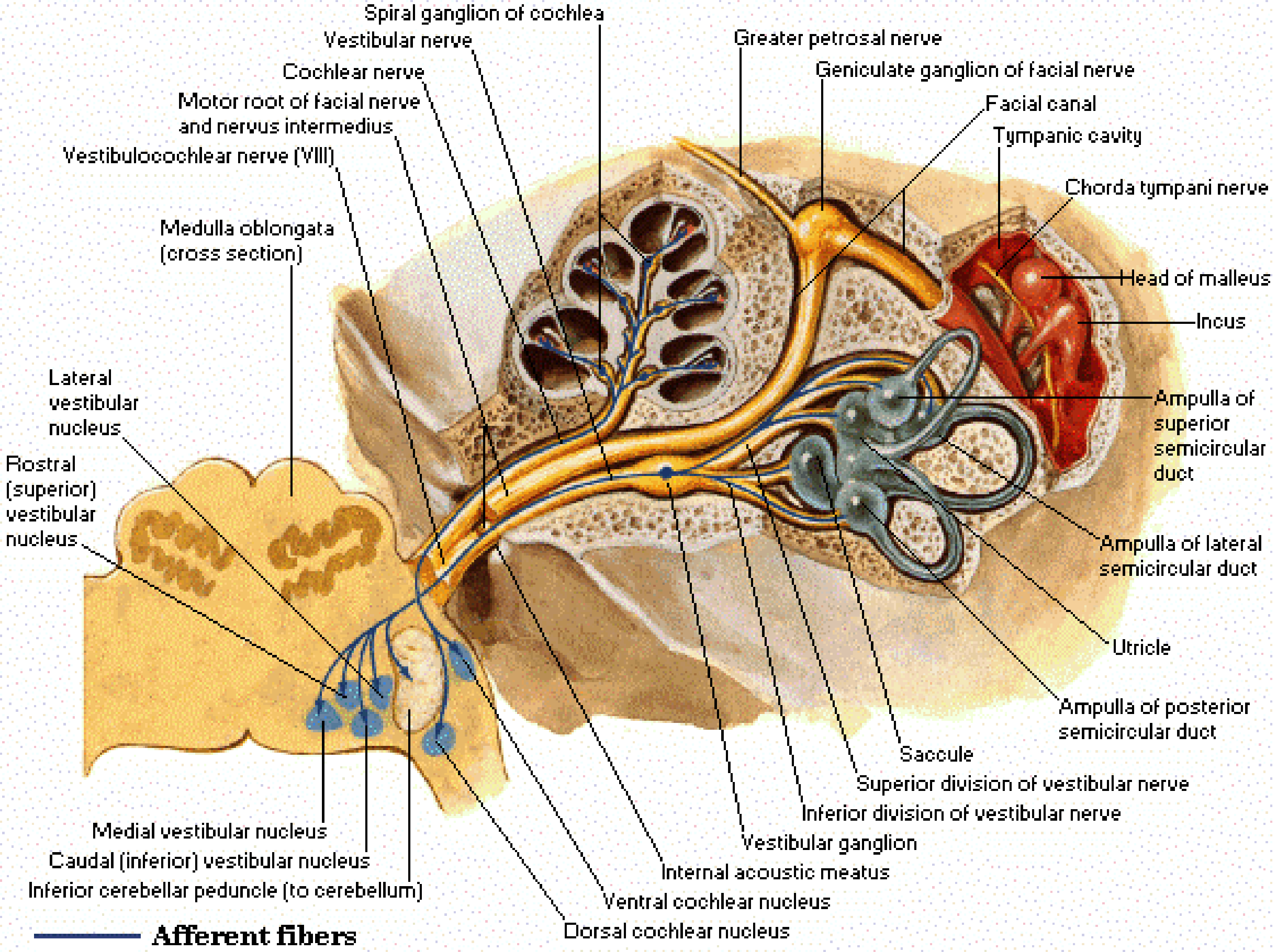


Superior division of oculomotor nerve
Sympathetic root of ciliary ganglion
Posterior ethmoidal nerve
Sensory root of ciliary ganglion
Anterior ethmoidal nerve
Superior oblique muscle
Levator palpebrae superioris muscle
Superior rectus muscle
Long ciliary nerve
Short ciliary nerves
Sphincter muscle of pupil
Dilator muscle of pupil
Ciliary muscle
Ciliary ganglion
Inferior oblique muscle
Parasympathetic root of ciliary ganglion
Medial rectus muscle
Inferior rectus muscle
Infraorbital nerve
Zygomatic nerve (cut)
Frontal nerve (cut)
Lacrimal nerve (cut)
Common annular tendon
Ophthalmic nerve (V1)
Oculomotor nerve (III)
Accessory oculomotor (Edinger-Westphal) nucleus (parasympathetic)
Oculomotor nucleus
Trochlear nucleus
Trochlear nerve (IV)
Abducens nucleus
Cavernous plexus
Internal carotid artery and nerve plexus
Abducens nerve (VI)
Lateral rectus muscle and abducens nerve (turned back)
Mandibular nerve (V3)
Maxillary nerve (V2)
Nasociliary nerve
Inferior division of oculomotor nerve
Pterygopalatine ganglion
Efferent fibers
Afferent fibers
Parasympathetic fibers
Sympathetic fibers

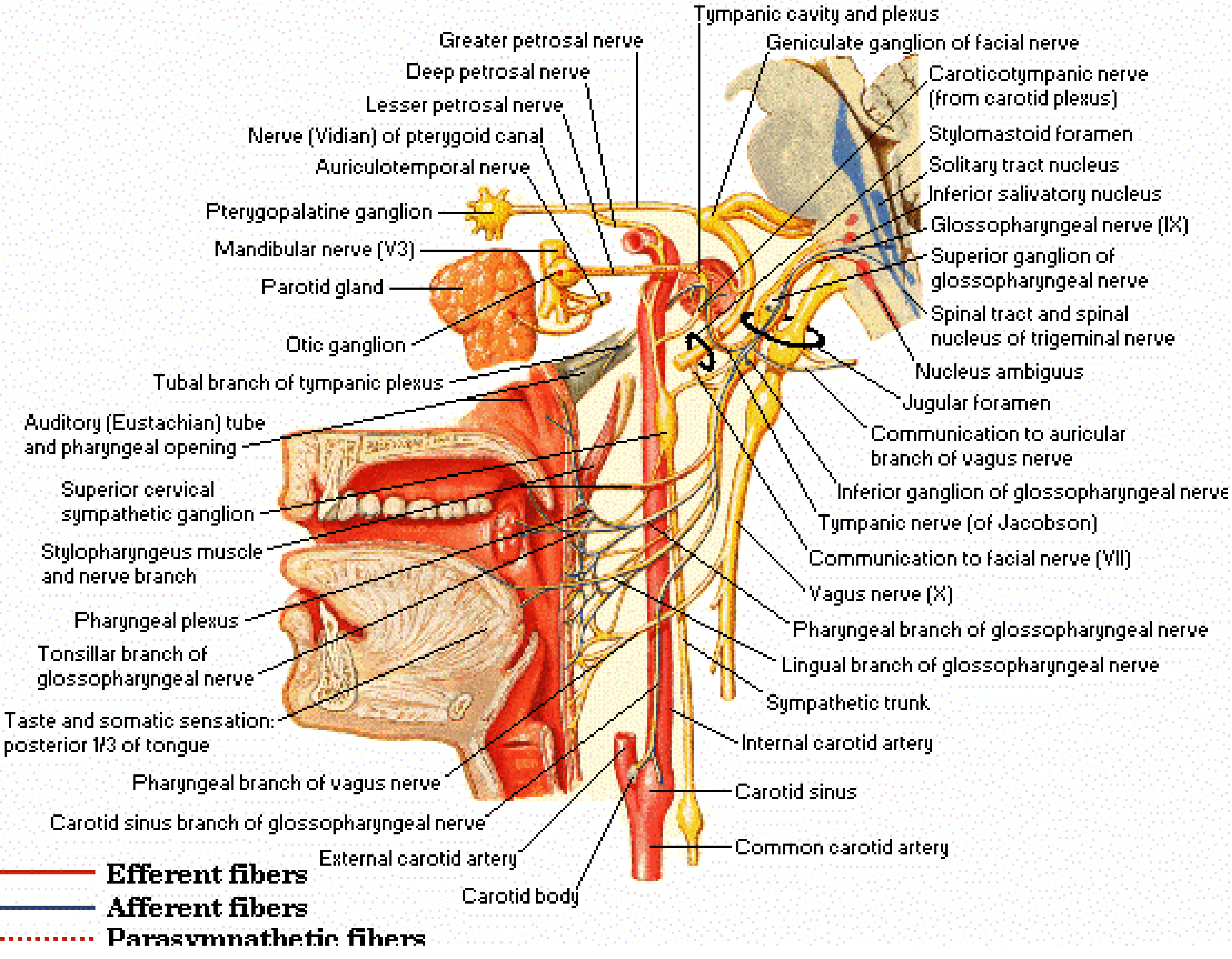

Efferent fibers
Afferent fibers
Proprioceptive fibers
Parasympathetic fibers
Sympathetic fibers
Schema
Sensory root of ciliary ganglion
Lacrimal nerve
Frontal nerve
Ciliary ganglion
Posterior ethmoidal nerve
Long ciliary nerve
Short ciliary nerves
Supraorbital nerve
Supratrochlear nerve
Anterior ethmoidal nerve
Infratrochlear nerve
Internal nasal branches of anterior ethmoidal nerve
External nasal branches of anterior ethmoidal nerve
Zygomaticotemporal nerve
Zygomaticofacial nerve
Infraorbital nerve
Zygomatic nerve
Maxillary nerve (V2)
Pterygopalatine ganglion
Nerve (Vidian) of pterygoid canal (from facial nerve [VII] and carotid plexus)
Superior alveolar branches of infraorbital nerve
Nasal branches (posterior superior lateral, nasopalatine and posterior superior medial) from pterygopalatine ganglion
Mental nerve
Inferior dental plexus
Mylohyoid nerve
Submandibular ganglion
Nasociliary nerve
Tentorial (meningeal) branch of CN V1
Meningeal branch of CN V2
Ophthalmic nerve (V1)
Superficial temporal branches of auriculotemporal nerve
Mesencephalic nucleus of CN V
Mandibular nerve (V3)
Motor nucleus of CN V
Pontine (principal) nucleus of CN V
Spinal tract and nucleus of CN V
Meningeal branch of CN V3
Lesser petrosal nerve (from glossopharyngeal nerve [IX])
Articular and auricular branches of auriculotemporal nerve
Chorda tympani nerve
Tensor tympani nerve
Facial nerve (VII)
Otic ganglion
Parotid branches of auriculotemporal nerve
Tensor veli palatini and medial pterygoid nerves
Inferior alveolar nerve
Lateral pterygoid and masseteric nerves
Deep temporal nerves (to temporalis muscle)
Pharyngeal branch from pterygopalatine ganglion
Buccal nerve
Lingual nerve
Greater and lesser palatine nerves


Efferent fibers
Afferent fibers
Parasympathetic fibers
Sympathetic fibers
Schema
Lesser petrosal nerve
Otic ganglion
Deep petrosal nerve (from carotid plexus)
Nerve (Vidian) of pterygoid canal
Greater petrosal nerve
Pterygopalatine ganglion
Carotid plexus (on internal carotid artery)
Temporal branches
Geniculate ganglion
Frontal belly (frontalis) of epicranius muscle
Internal acoustic meatus
Orbicularis oculi muscle
Facial nerve (VII)
Zygomaticus major muscle
Nervus intermedius
Corrugator supercilii muscle
Motor nucleus of facial nerve
Zygomaticus minor muscle
Superior salivatory nucleus
Procerus muscle
Solitary tract nucleus
Levator labii superioris muscle
Occipital belly (occipitalis) of epicranius muscle
Levator labii superioris alaeque nasi muscle
Nerve to stapedius muscle
Nasalis muscle
Tympanic plexus
Taste: anterior 2/3 of tongue
Caroticotympanic nerve (from carotid plexus)
Depressor septi muscle
Occipital branch of posterior auricular nerve
Levator anguli oris muscle
Branches to auricular muscles
Orbicularis oris muscle
Posterior auricular nerve
Stylomastoid foramen
Depressor anguli oris muscle
Tympanic nerve (of Jacobson) (from glossopharyngeal nerve)
Depressor labii inferioris muscle
Glossopharyngeal nerve (IX)
Mentalis muscle
Digastric muscle (posterior belly)
Risorius muscle
Stylohyoid muscle
Buccinator muscle
Sublingual gland
Cervical branch
Zygomatic branches
Marginal mandibular branch
Buccal branches
Chorda tympani nerve
Submandibular gland
Lingual nerve (from trigeminal nerve)
Submandibular ganglion
Platysma muscle

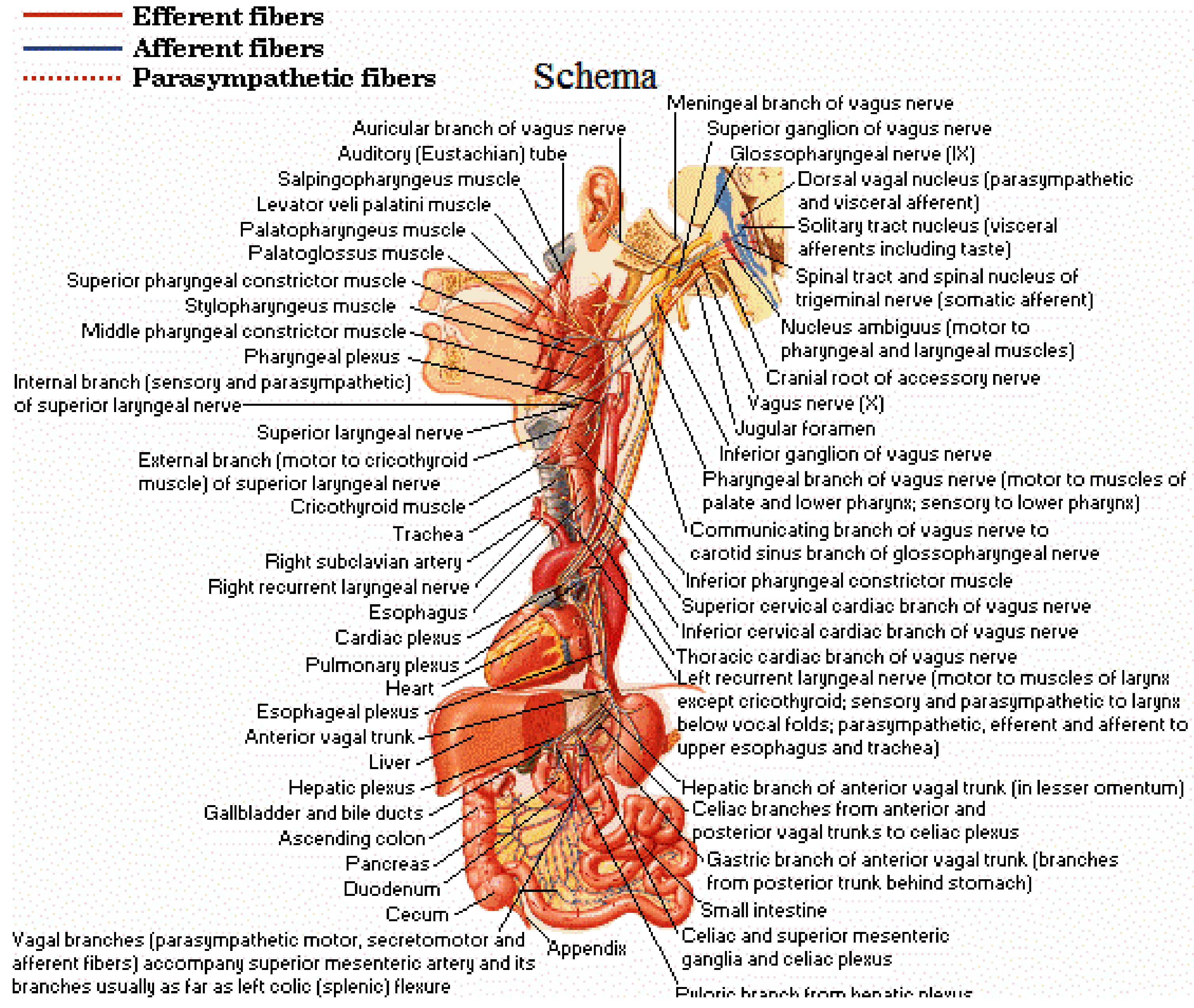
Schema


Spiral ganglion of cochlea
Vestibular nerve
Cochlear nerve
Motor root of facial nerve and nervus intermedius
Vestibulocochlear nerve (VIII)
Medulla oblongata (cross section)
Lateral vestibular nucleus
Rostral (superior) vestibular nucleus
Greater petrosal nerve
Geniculate ganglion of facial nerve
Facial canal
Tympanic cavity
Chorda tympani nerve
Head of malleus
Incus
Ampulla of superior semicircular duct
Ampulla of lateral semicircular duct
Utricle
Ampulla of posterior semicircular duct
Saccule
Superior division of vestibular nerve
Inferior division of vestibular nerve
Vestibular ganglion
Internal acoustic meatus
Ventral cochlear nucleus
Dorsal cochlear nucleus
Medial vestibular nucleus
Caudal (inferior) vestibular nucleus
Inferior cerebellar peduncle (to cerebellum)
Afferent fibers

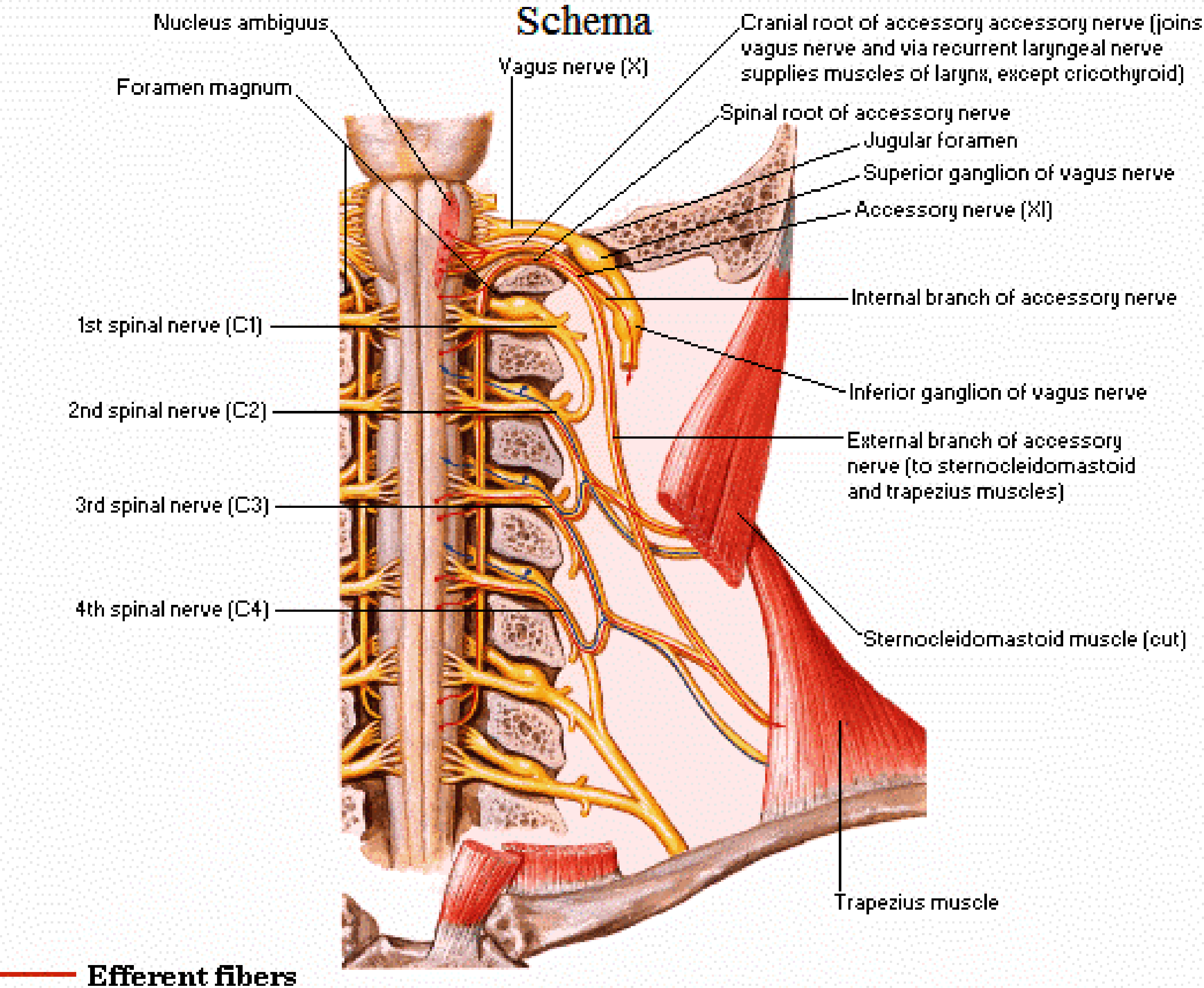
Schema



Tympanic cavity and plexus
Greater petrosal nerve
Geniculate ganglion of facial nerve
Deep petrosal nerve
Caroticotympanic nerve (from carotid plexus)
Lesser petrosal nerve
Nerve (Vidian) of pterygoid canal
Stylomastoid foramen
Auriculotemporal nerve
Solitary tract nucleus
Inferior salivatory nucleus
Pterygopalatine ganglion
Glossopharyngeal nerve (IX)
Mandibular nerve (V3)
Superior ganglion of glossopharyngeal nerve
Parotid gland
Spinal tract and spinal nucleus of trigeminal nerve
Otic ganglion
Nucleus ambiguus
Tubal branch of tympanic plexus
Jugular foramen
Auditory (Eustachian) tube and pharyngeal opening
Communication to auricular branch of vagus nerve
Superior cervical sympathetic ganglion
Inferior ganglion of glossopharyngeal nerve
Tympanic nerve (of Jacobson)
Stylopharyngeus muscle and nerve branch
Communication to facial nerve (VII)
Vagus nerve (X)
Pharyngeal plexus
Pharyngeal branch of glossopharyngeal nerve
Tonsillar branch of glossopharyngeal nerve
Lingual branch of glossopharyngeal nerve
Sympathetic trunk
Taste and somatic sensation: posterior 1/3 of tongue
Internal carotid artery
Pharyngeal branch of vagus nerve
Carotid sinus
Carotid sinus branch of glossopharyngeal nerve
External carotid artery
Common carotid artery
Carotid body
Efferent fibers
Afferent fibers
Parasympathetic fibers

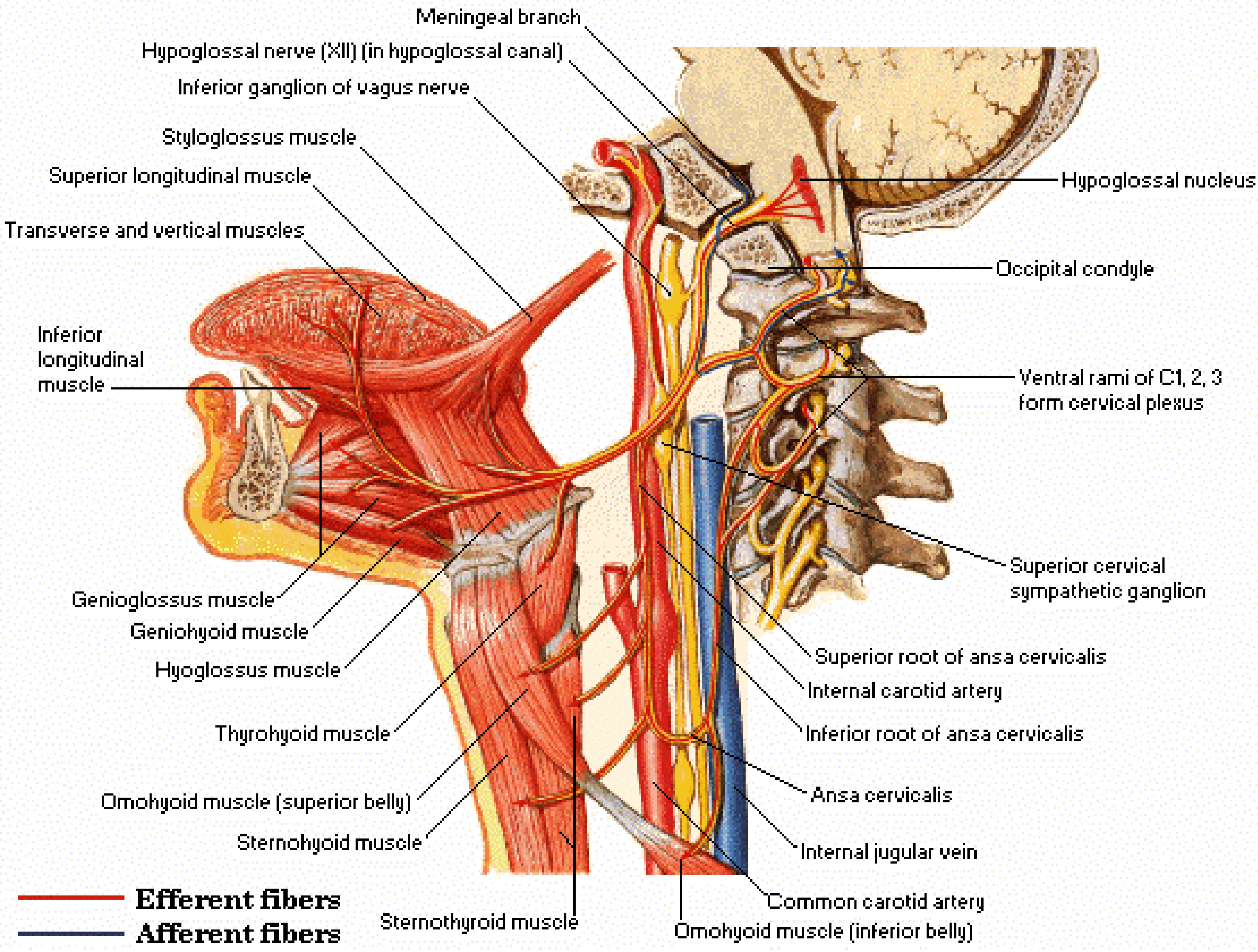

Efferent fibers
Afferent fibers
Parasympathetic fibers
Schema
Meningeal branch of vagus nerve
Auricular branch of vagus nerve
Superior ganglion of vagus nerve
Auditory (Eustachian) tube
Glossopharyngeal nerve (IX)
Salpingopharyngeus muscle
Dorsal vagal nucleus (parasympathetic and visceral afferent)
Levator veli palatini muscle
Palatopharyngeus muscle
Solitary tract nucleus (visceral afferents including taste)
Palatoglossus muscle
Spinal tract and spinal nucleus of trigeminal nerve (somatic afferent)
Superior pharyngeal constrictor muscle
Stylopharyngeus muscle
Nucleus ambiguus (motor to pharyngeal and laryngeal muscles)
Middle pharyngeal constrictor muscle
Pharyngeal plexus
Cranial root of accessory nerve
Internal branch (sensory and parasympathetic) of superior laryngeal nerve
Vagus nerve (X)
Superior laryngeal nerve
Jugular foramen
Inferior ganglion of vagus nerve
External branch (motor to cricothyroid muscle) of superior laryngeal nerve
Pharyngeal branch of vagus nerve (motor to muscles of palate and lower pharynx; sensory to lower pharynx)
Cricothyroid muscle
Trachea
Communicating branch of vagus nerve to carotid sinus branch of glossopharyngeal nerve
Right subclavian artery
Inferior pharyngeal constrictor muscle
Right recurrent laryngeal nerve
Superior cervical cardiac branch of vagus nerve
Esophagus
Inferior cervical cardiac branch of vagus nerve
Cardiac plexus
Thoracic cardiac branch of vagus nerve
Pulmonary plexus
Left recurrent laryngeal nerve (motor to muscles of larynx except cricothyroid; sensory and parasympathetic to larynx below vocal folds; parasympathetic, efferent and afferent to upper esophagus and trachea)
Heart
Esophageal plexus
Anterior vagal trunk
Liver
Hepatic plexus
Hepatic branch of anterior vagal trunk (in lesser omentum)
Gallbladder and bile ducts
Celiac branches from anterior and posterior vagal trunks to celiac plexus
Ascending colon
Pancreas
Gastric branch of anterior vagal trunk (branches from posterior trunk behind stomach)
Duodenum
Small intestine
Cecum
Celiac and superior mesenteric ganglia and celiac plexus
Vagal branches (parasympathetic motor, secretomotor and afferent fibers) accompany superior mesenteric artery and its branches usually as far as left colic (splenic) flexure
Appendix

Schema



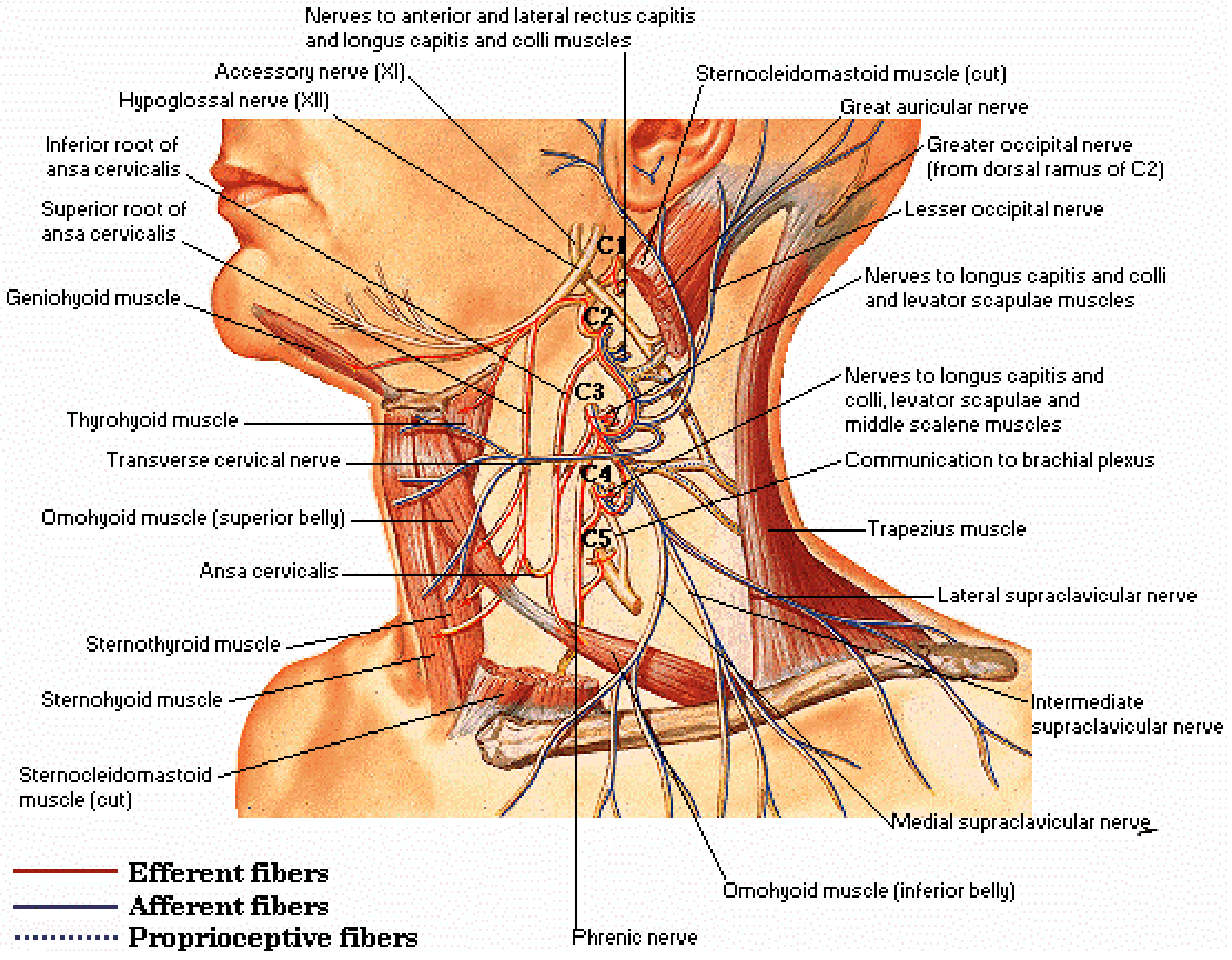
Efferent fibers
Proprioceptive fibers

Schema

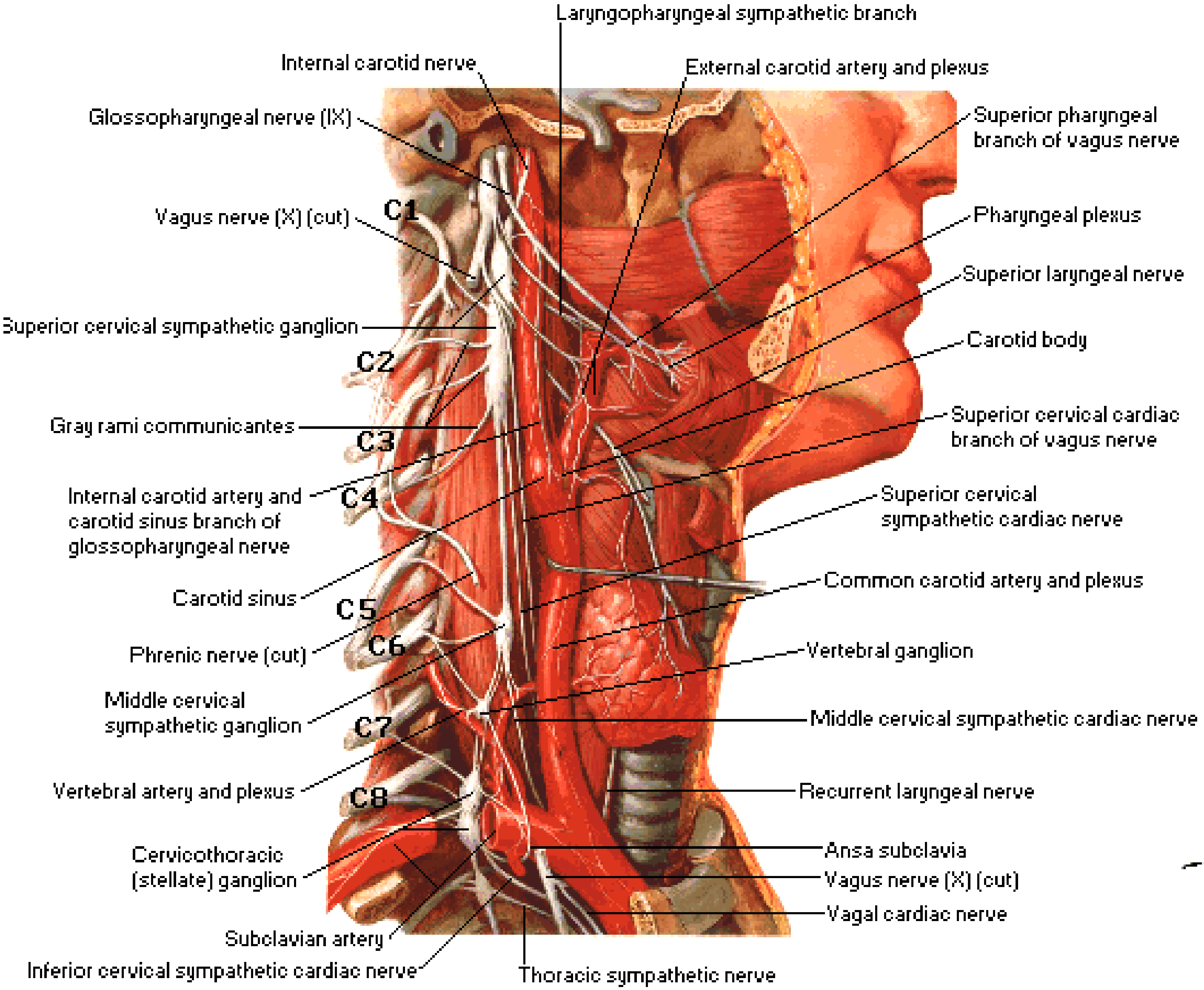


Efferent fibers
Afferent fibers

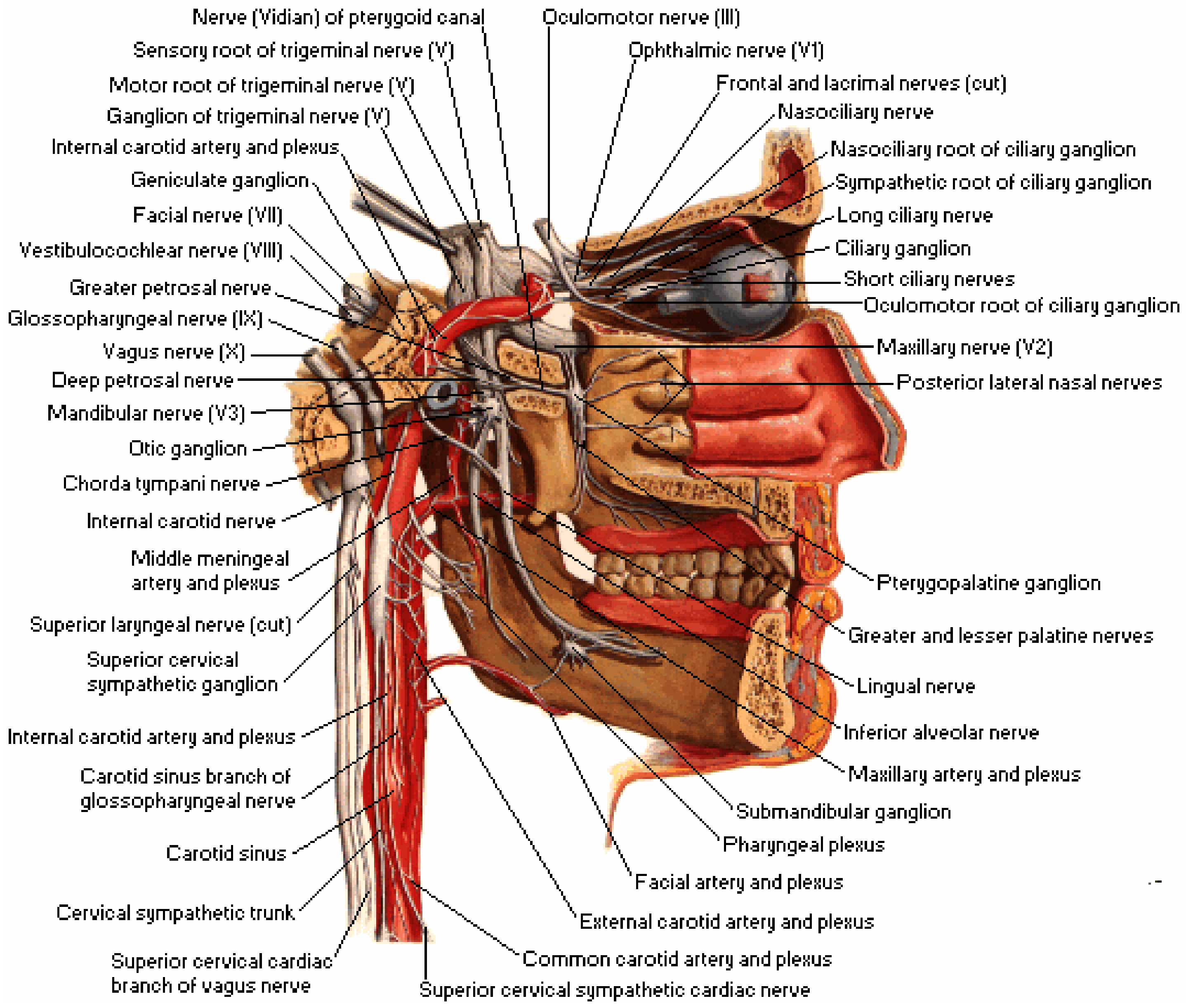
Schema



Nerves to anterior and lateral rectus capitis and longus capitis and colli muscles
Accessory nerve (XI)
Hypoglossal nerve (XII)
Inferior root of ansa cervicalis
Superior root of ansa cervicalis
Geniohyoid muscle
Thyrohyoid muscle
Transverse cervical nerve
Omohyoid muscle (superior belly)
Ansa cervicalis
Sternothyroid muscle
Sternohyoid muscle
Sternocleidomastoid muscle (cut)
Sternocleidomastoid muscle (cut)
Great auricular nerve
Greater occipital nerve (from dorsal ramus of C2)
Lesser occipital nerve
Nerves to longus capitis and colli and levator scapulae muscles
Nerves to longus capitis and colli, levator scapulae and middle scalene muscles
Communication to brachial plexus
Trapezius muscle
Lateral supraclavicular nerve
Intermediate supraclavicular nerve
Medial supraclavicular nerve
Omohyoid muscle (inferior belly)
Phrenic nerve
C1
C2
C3
C4
C5
Efferent fibers
Afferent fibers
Proprioceptive fibers

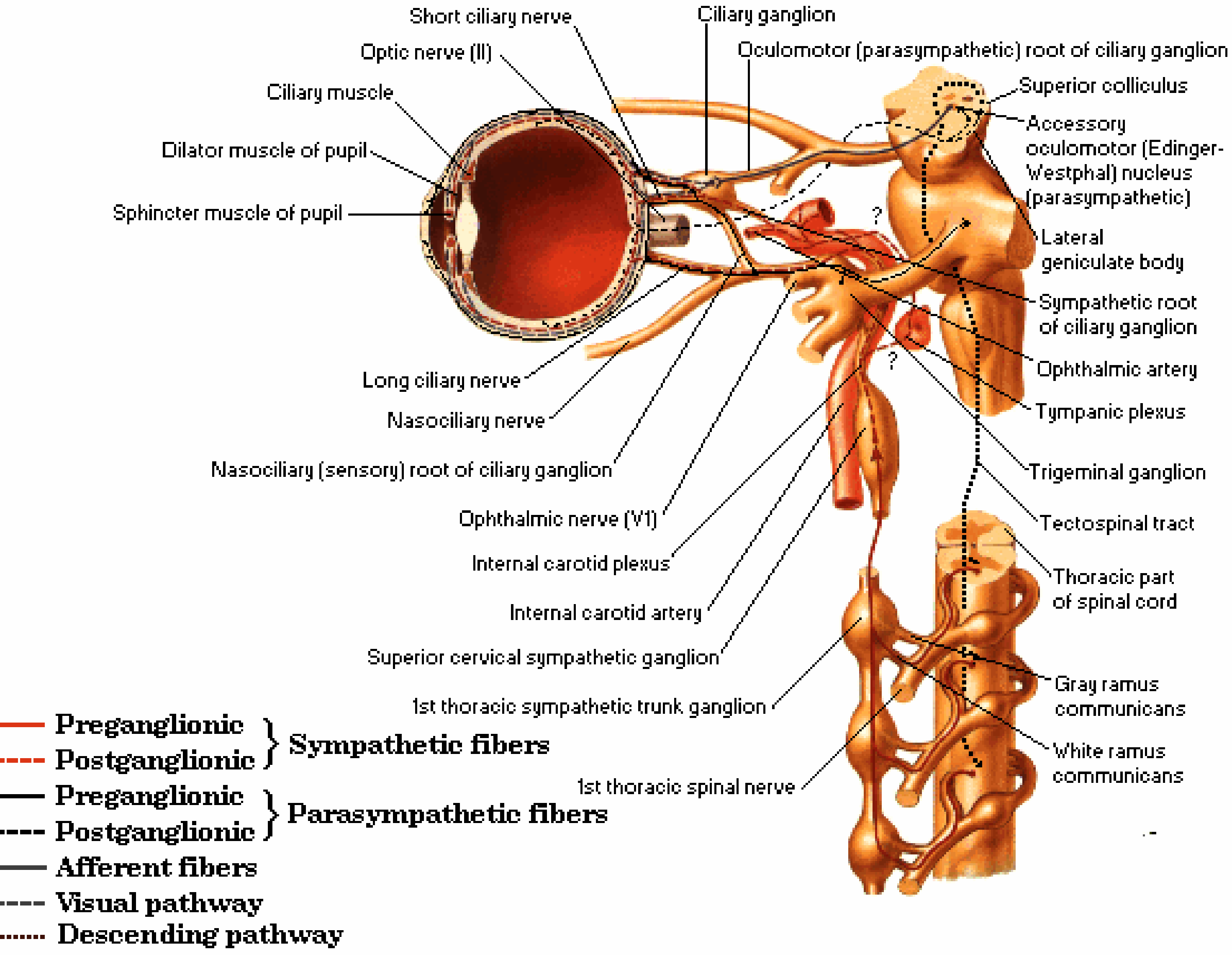


Laryngopharyngeal sympathetic branch
Internal carotid nerve
External carotid artery and plexus
Glossopharyngeal nerve (IX)
Superior pharyngeal branch of vagus nerve
Vagus nerve (X) (cut)
C1
Pharyngeal plexus
Superior laryngeal nerve
Superior cervical sympathetic ganglion
Carotid body
C2
Gray rami communicantes
C3
Superior cervical cardiac branch of vagus nerve
Internal carotid artery and carotid sinus branch of glossopharyngeal nerve
C4
Superior cervical sympathetic cardiac nerve
Carotid sinus
Common carotid artery and plexus
C5
Phrenic nerve (cut)
C6
Vertebral ganglion
Middle cervical sympathetic ganglion
Middle cervical sympathetic cardiac nerve
C7
Vertebral artery and plexus
Recurrent laryngeal nerve
C8
Ansa subclavia
Cervicothoracic (stellate) ganglion
Vagus nerve (X) (cut)
Vagal cardiac nerve
Subclavian artery
Inferior cervical sympathetic cardiac nerve
Thoracic sympathetic nerve



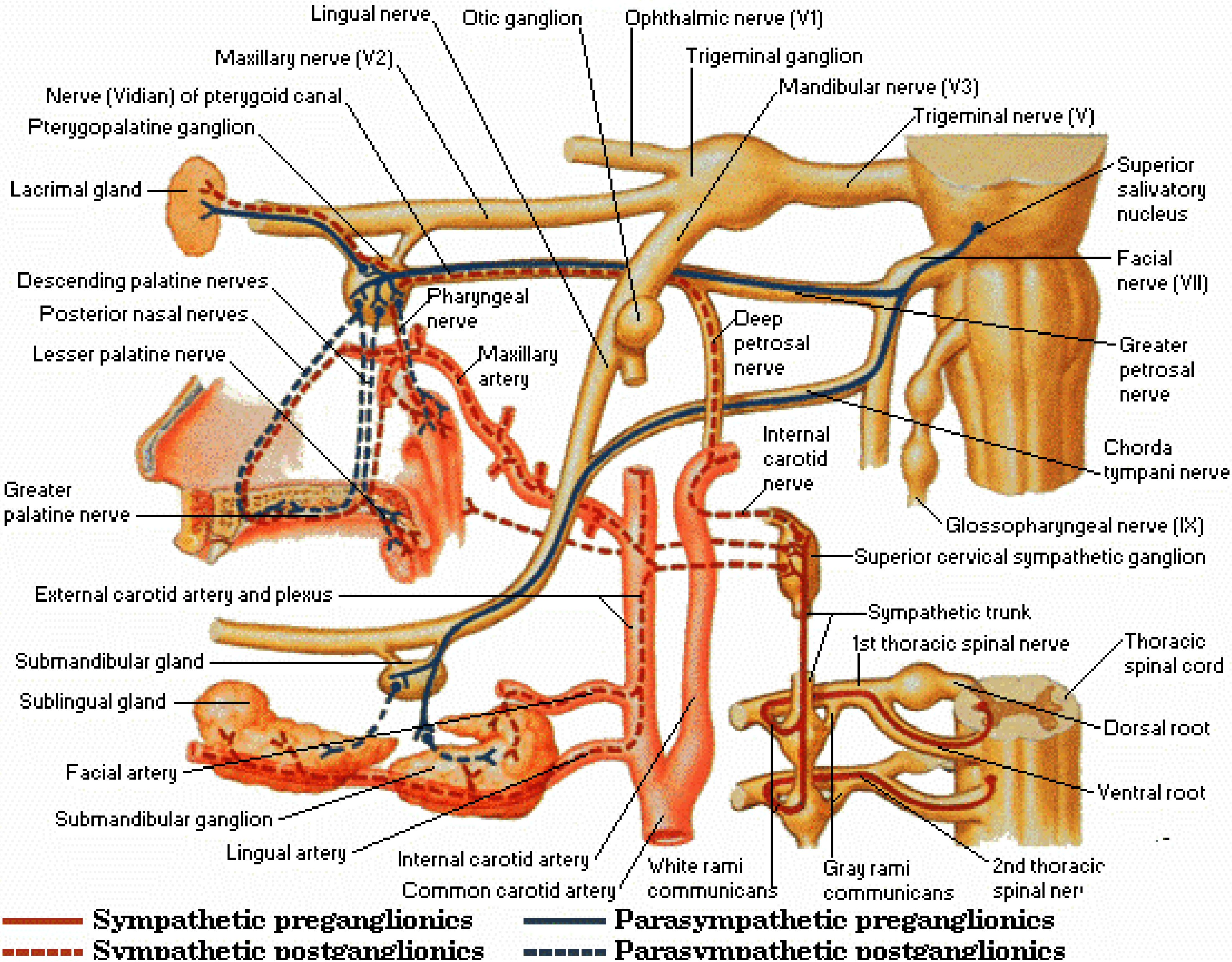
Nerve (Vidian) of pterygoid canal
Sensory root of trigeminal nerve (V)
Motor root of trigeminal nerve (V)
Ganglion of trigeminal nerve (V)
Internal carotid artery and plexus
Geniculate ganglion
Facial nerve (VII)
Vestibulocochlear nerve (VIII)
Greater petrosal nerve
Glossopharyngeal nerve (IX)
Vagus nerve (X)
Deep petrosal nerve
Mandibular nerve (V3)
Otic ganglion
Chorda tympani nerve
Internal carotid nerve
Middle meningeal artery and plexus
Superior laryngeal nerve (cut)
Superior cervical sympathetic ganglion
Internal carotid artery and plexus
Carotid sinus branch of glossopharyngeal nerve
Carotid sinus
Cervical sympathetic trunk
Superior cervical cardiac branch of vagus nerve
Oculomotor nerve (III)
Ophthalmic nerve (V1)
Frontal and lacrimal nerves (cut)
Nasociliary nerve
Nasociliary root of ciliary ganglion
Sympathetic root of ciliary ganglion
Long ciliary nerve
Ciliary ganglion
Short ciliary nerves
Oculomotor root of ciliary ganglion
Maxillary nerve (V2)
Posterior lateral nasal nerves
Pterygopalatine ganglion
Greater and lesser palatine nerves
Lingual nerve
Inferior alveolar nerve
Maxillary artery and plexus
Submandibular ganglion
Pharyngeal plexus
Facial artery and plexus
External carotid artery and plexus
Common carotid artery and plexus
Superior cervical sympathetic cardiac nerve

Schema



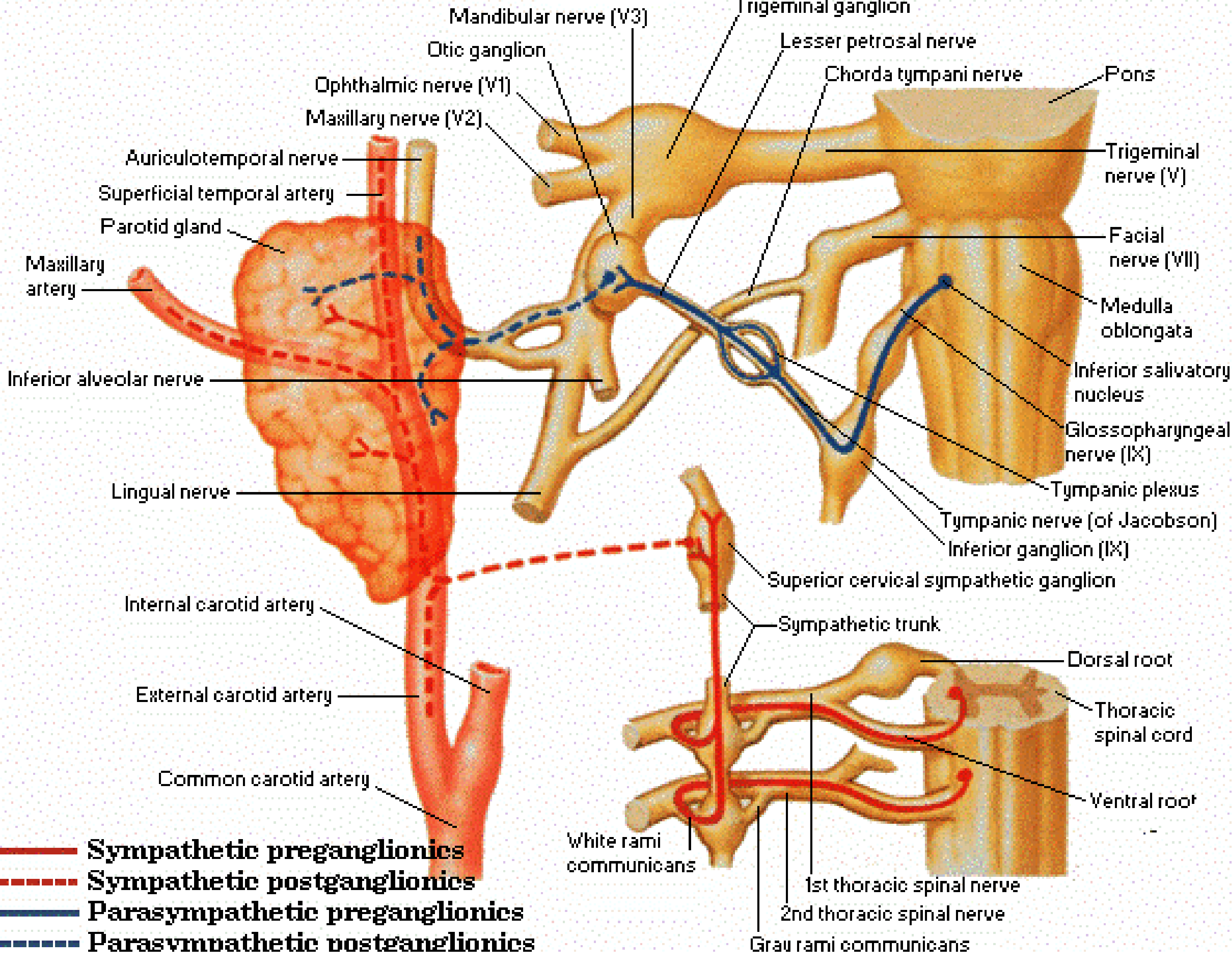
Short ciliary nerve
Ciliary ganglion
Optic nerve (II)
Oculomotor (parasympathetic) root of ciliary ganglion
Ciliary muscle
Superior colliculus
Accessory oculomotor (Edinger-Westphal) nucleus (parasympathetic)
Dilator muscle of pupil
Sphincter muscle of pupil
Lateral geniculate body
Sympathetic root of ciliary ganglion
Ophthalmic artery
Long ciliary nerve
Tympanic plexus
Nasociliary nerve
Trigeminal ganglion
Nasociliary (sensory) root of ciliary ganglion
Tectospinal tract
Ophthalmic nerve (V1)
Internal carotid plexus
Thoracic part of spinal cord
Internal carotid artery
Superior cervical sympathetic ganglion
Gray ramus communicans
1st thoracic sympathetic trunk ganglion
White ramus communicans
1st thoracic spinal nerve
?
?
Preganglionic
Postganglionic
Sympathetic fibers
Preganglionic
Postganglionic
Parasympathetic fibers
Afferent fibers
Visual pathway
Descending pathway

Schema

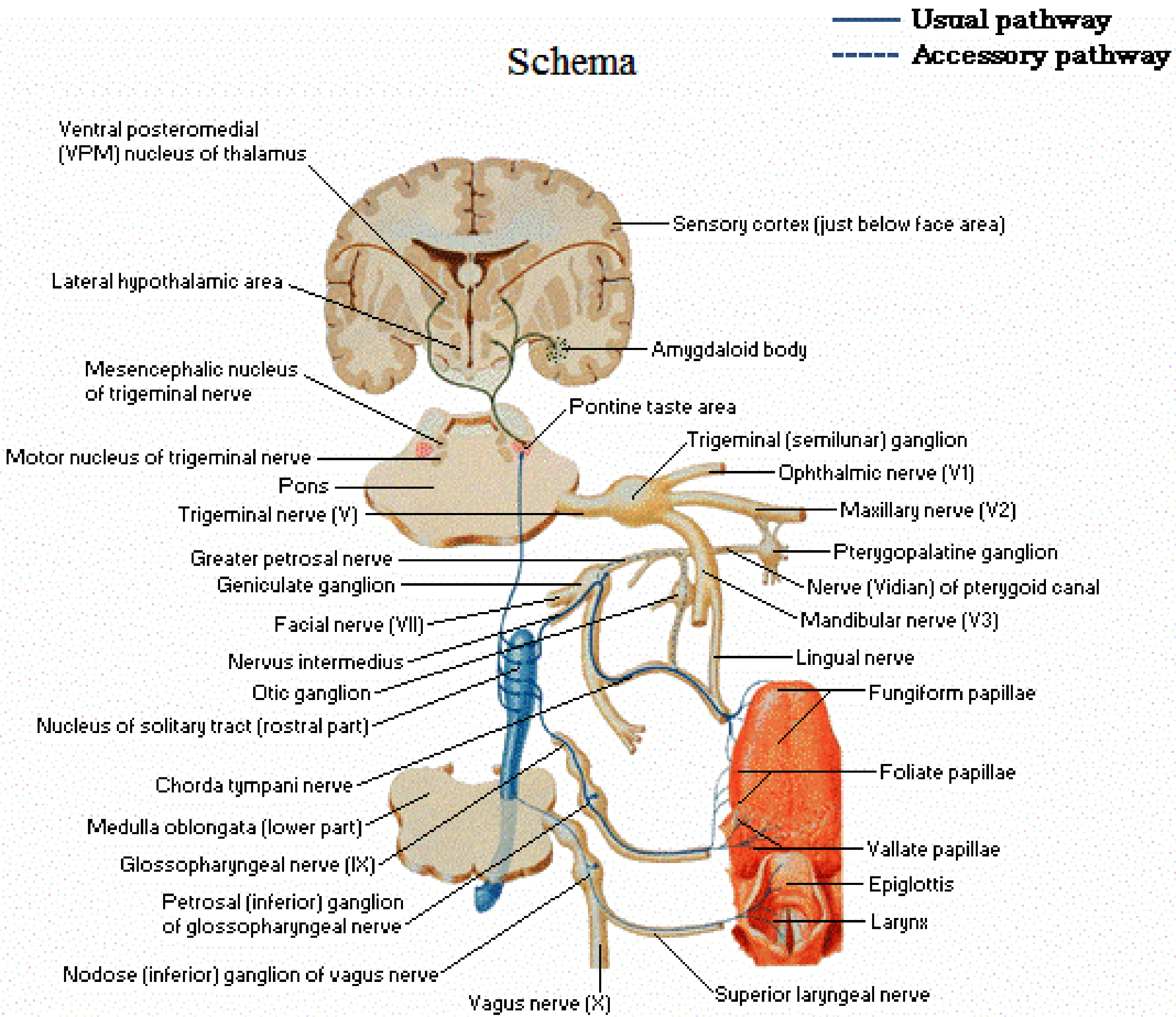


Lingual nerve
Otic ganglion
Ophthalmic nerve (V1)
Maxillary nerve (V2)
Trigeminal ganglion
Mandibular nerve (V3)
Nerve (Vidian) of pterygoid canal
Trigeminal nerve (V)
Pterygopalatine ganglion
Superior salivatory nucleus
Lacrimal gland
Facial nerve (VII)
Descending palatine nerves
Pharyngeal nerve
Posterior nasal nerves
Deep petrosal nerve
Greater petrosal nerve
Lesser palatine nerve
Maxillary artery
Chorda tympani nerve
Internal carotid nerve
Greater palatine nerve
Glossopharyngeal nerve (IX)
Superior cervical sympathetic ganglion
External carotid artery and plexus
Sympathetic trunk
1st thoracic spinal nerve
Thoracic spinal cord
Submandibular gland
Sublingual gland
Dorsal root
Facial artery
Ventral root
Submandibular ganglion
Lingual artery
Internal carotid artery
White rami communicans
Gray rami communicans
2nd thoracic spinal ner
Common carotid artery
Sympathetic preganglionics
Sympathetic postganglionics
Parasympathetic preganglionics
Parasympathetic postganglionics

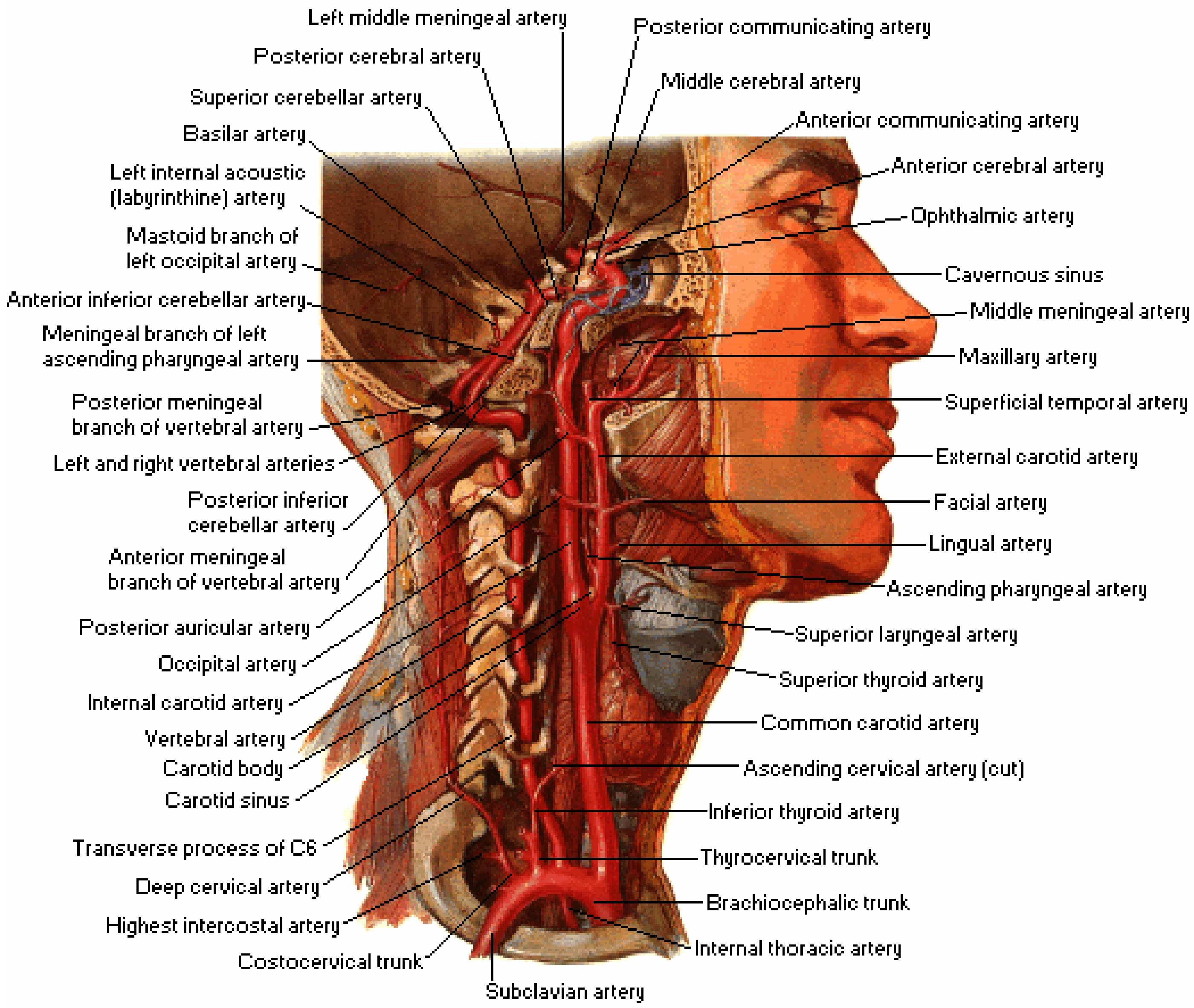
Schema


Mandibular nerve (V3)
Trigeminal ganglion
Lesser petrosal nerve
Otic ganglion
Chorda tympani nerve
Ophthalmic nerve (V1)
Pons
Maxillary nerve (V2)
Auriculotemporal nerve
Trigeminal nerve (V)
Superficial temporal artery
Parotid gland
Facial nerve (VII)
Maxillary artery
Medulla oblongata
Inferior salivatory nucleus
Inferior alveolar nerve
Glossopharyngeal nerve (IX)
Tympanic plexus
Lingual nerve
Tympanic nerve (of Jacobson)
Inferior ganglion (IX)
Superior cervical sympathetic ganglion
Internal carotid artery
Sympathetic trunk
Dorsal root
External carotid artery
Thoracic spinal cord
Common carotid artery
Ventral root
White rami communicans
1st thoracic spinal nerve
2nd thoracic spinal nerve
Gray rami communicans
Sympathetic preganglionics
Sympathetic postganglionics
Parasympathetic preganglionics
Parasympathetic postganglionics

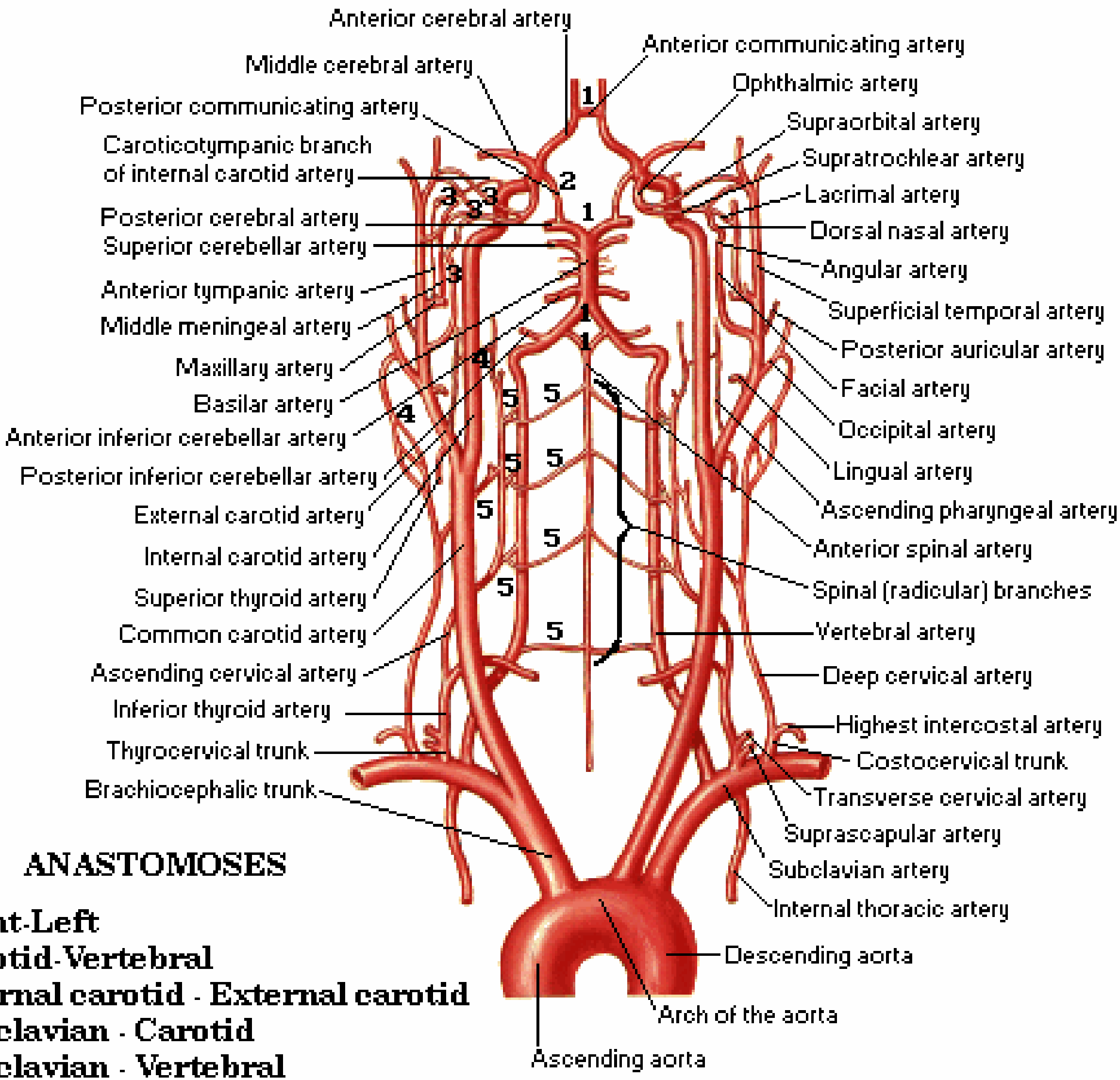
Schema



Usual pathway
Accessory pathway
Ventral posteromedial (VPM) nucleus of thalamus
Sensory cortex (just below face area)
Lateral hypothalamic area
Amygdaloid body
Mesencephalic nucleus of trigeminal nerve
Pontine taste area
Trigeminal (semilunar) ganglion
Motor nucleus of trigeminal nerve
Ophthalmic nerve (V1)
Pons
Trigeminal nerve (V)
Maxillary nerve (V2)
Greater petrosal nerve
Pterygopalatine ganglion
Geniculate ganglion
Nerve (Vidian) of pterygoid canal
Facial nerve (VII)
Mandibular nerve (V3)
Nervus intermedius
Lingual nerve
Otic ganglion
Fungiform papillae
Nucleus of solitary tract (rostral part)
Chorda tympani nerve
Foliate papillae
Medulla oblongata (lower part)
Glossopharyngeal nerve (IX)
Vallate papillae
Epiglottis
Petrosal (inferior) ganglion of glossopharyngeal nerve
Larynx
Nodose (inferior) ganglion of vagus nerve
Vagus nerve (X)
Superior laryngeal nerve


Left middle meningeal artery
Posterior communicating artery
Posterior cerebral artery
Middle cerebral artery
Superior cerebellar artery
Anterior communicating artery
Basilar artery
Anterior cerebral artery
Left internal acoustic (labyrinthine) artery
Ophthalmic artery
Mastoid branch of left occipital artery
Cavernous sinus
Anterior inferior cerebellar artery
Middle meningeal artery
Meningeal branch of left ascending pharyngeal artery
Maxillary artery
Superficial temporal artery
Posterior meningeal branch of vertebral artery
Left and right vertebral arteries
External carotid artery
Posterior inferior cerebellar artery
Facial artery
Lingual artery
Anterior meningeal branch of vertebral artery
Ascending pharyngeal artery
Posterior auricular artery
Superior laryngeal artery
Occipital artery
Superior thyroid artery
Internal carotid artery
Common carotid artery
Vertebral artery
Carotid body
Ascending cervical artery (cut)
Carotid sinus
Inferior thyroid artery
Transverse process of C6
Thyrocervical trunk
Deep cervical artery
Brachiocephalic trunk
Highest intercostal artery
Internal thoracic artery
Costocervical trunk
Subclavian artery

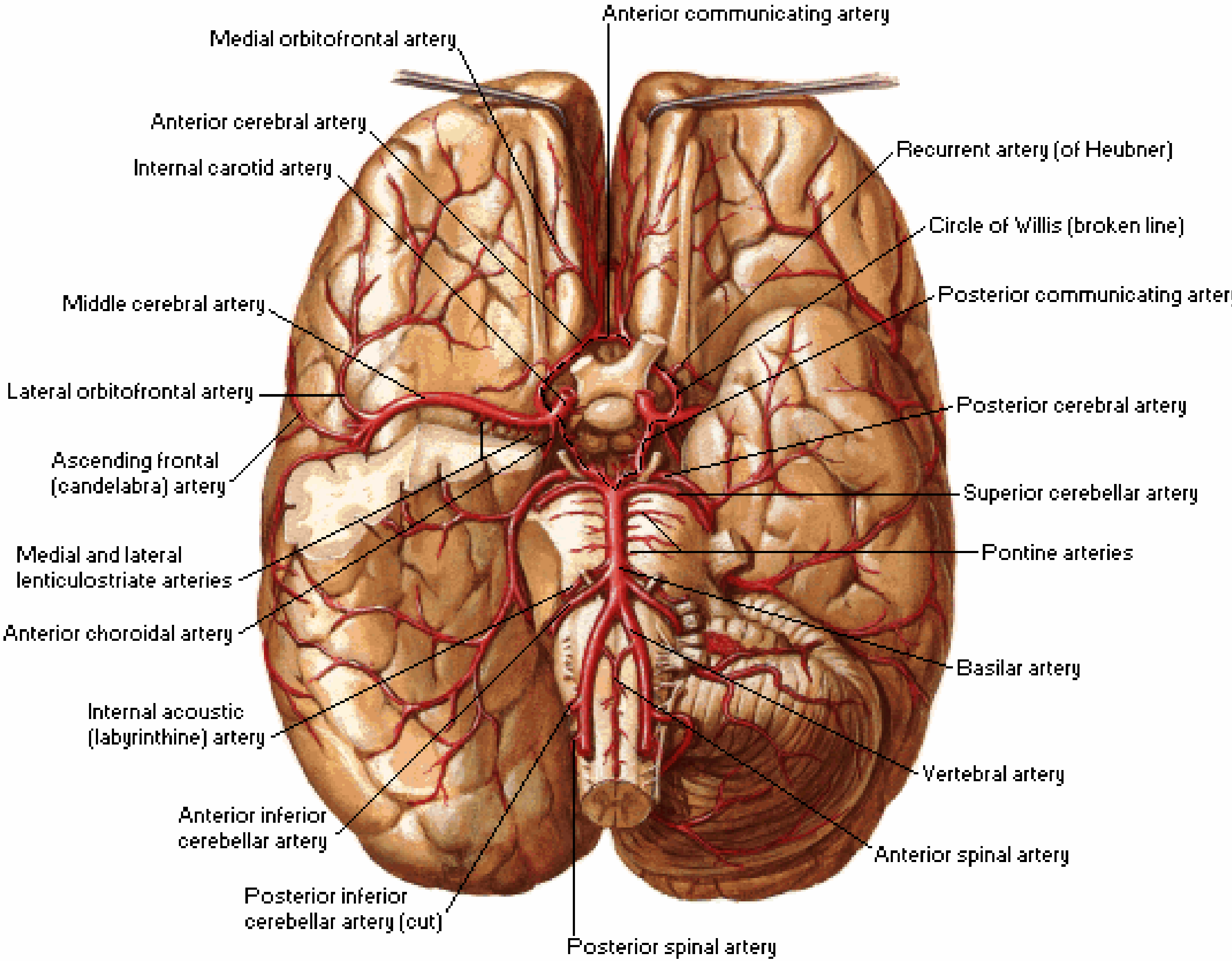
Schema



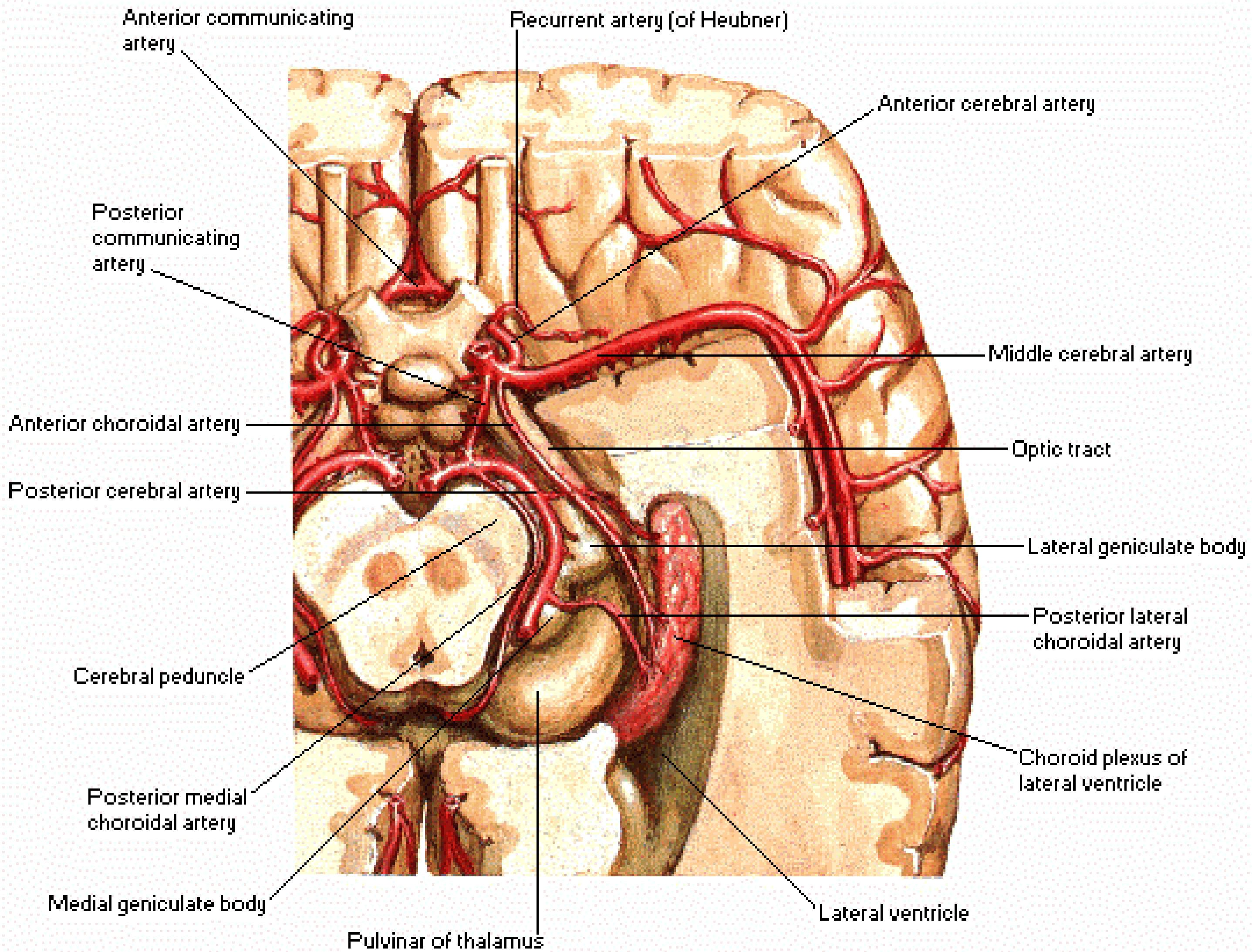
ANASTOMOSES

1. **Right-Left**
2. **Carotid-Vertebral**
3. **Internal carotid - External carotid**
4. **Subclavian - Carotid**
5. **Subclavian - Vertebral**

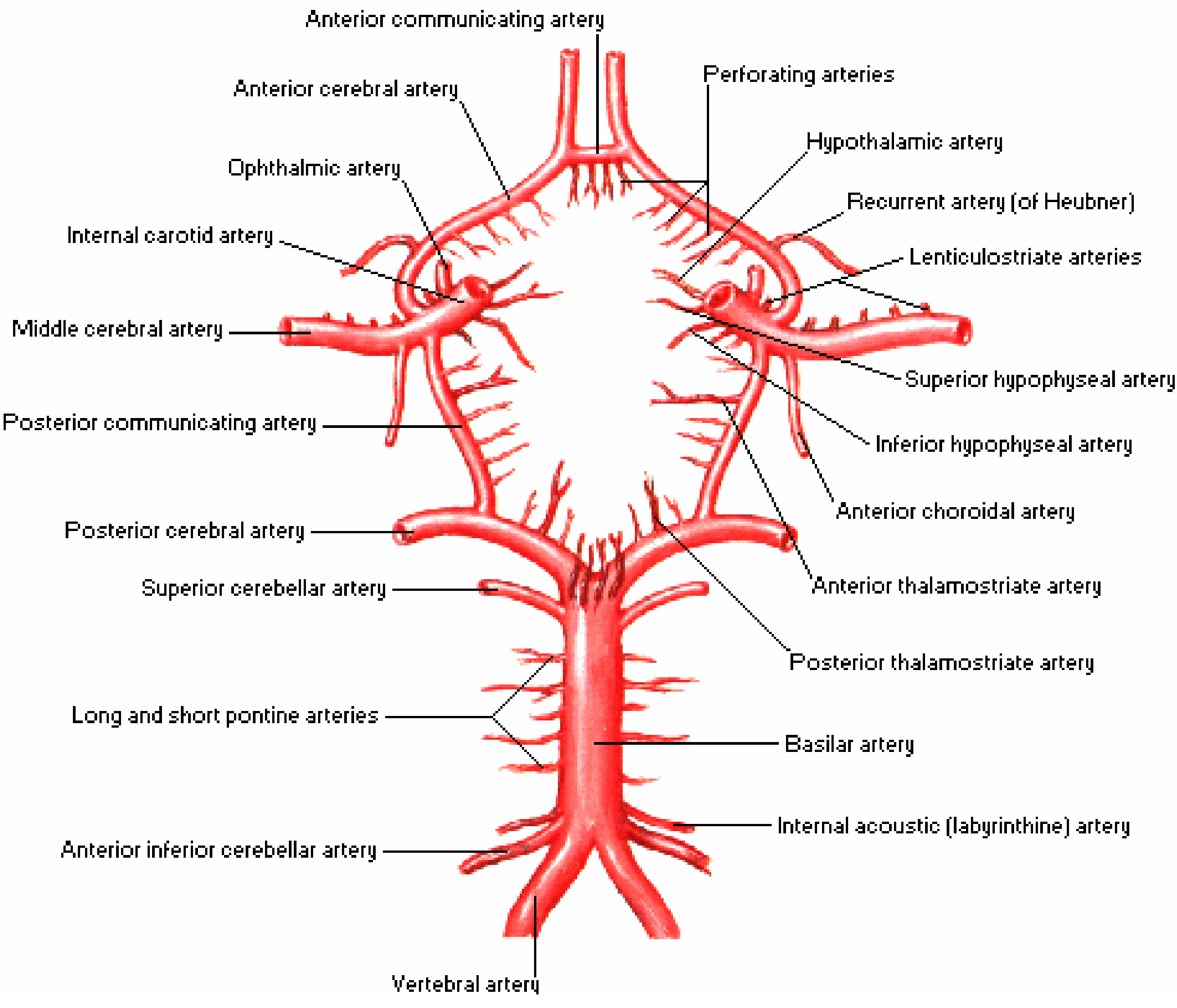
Inferior View



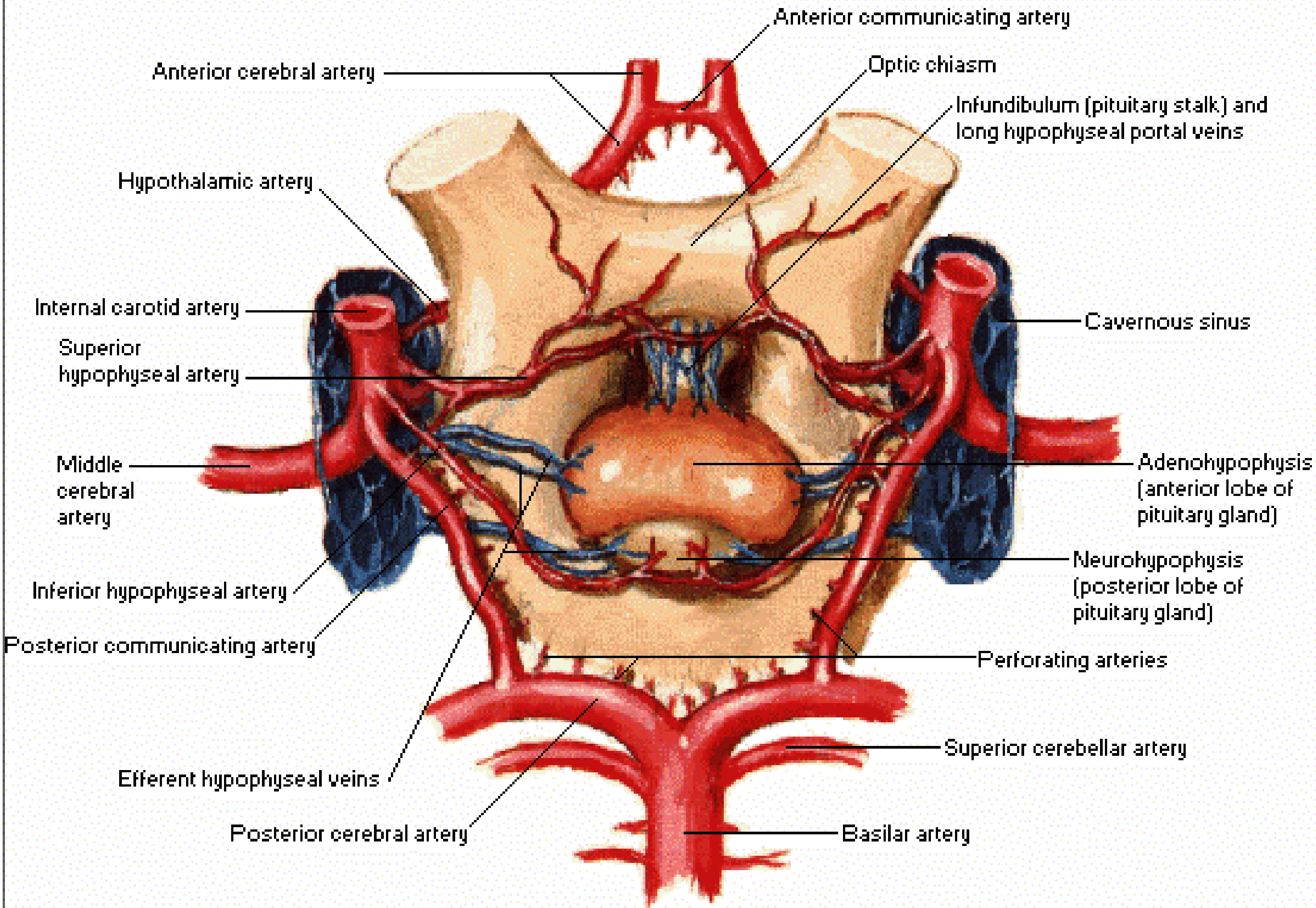
Inferior View



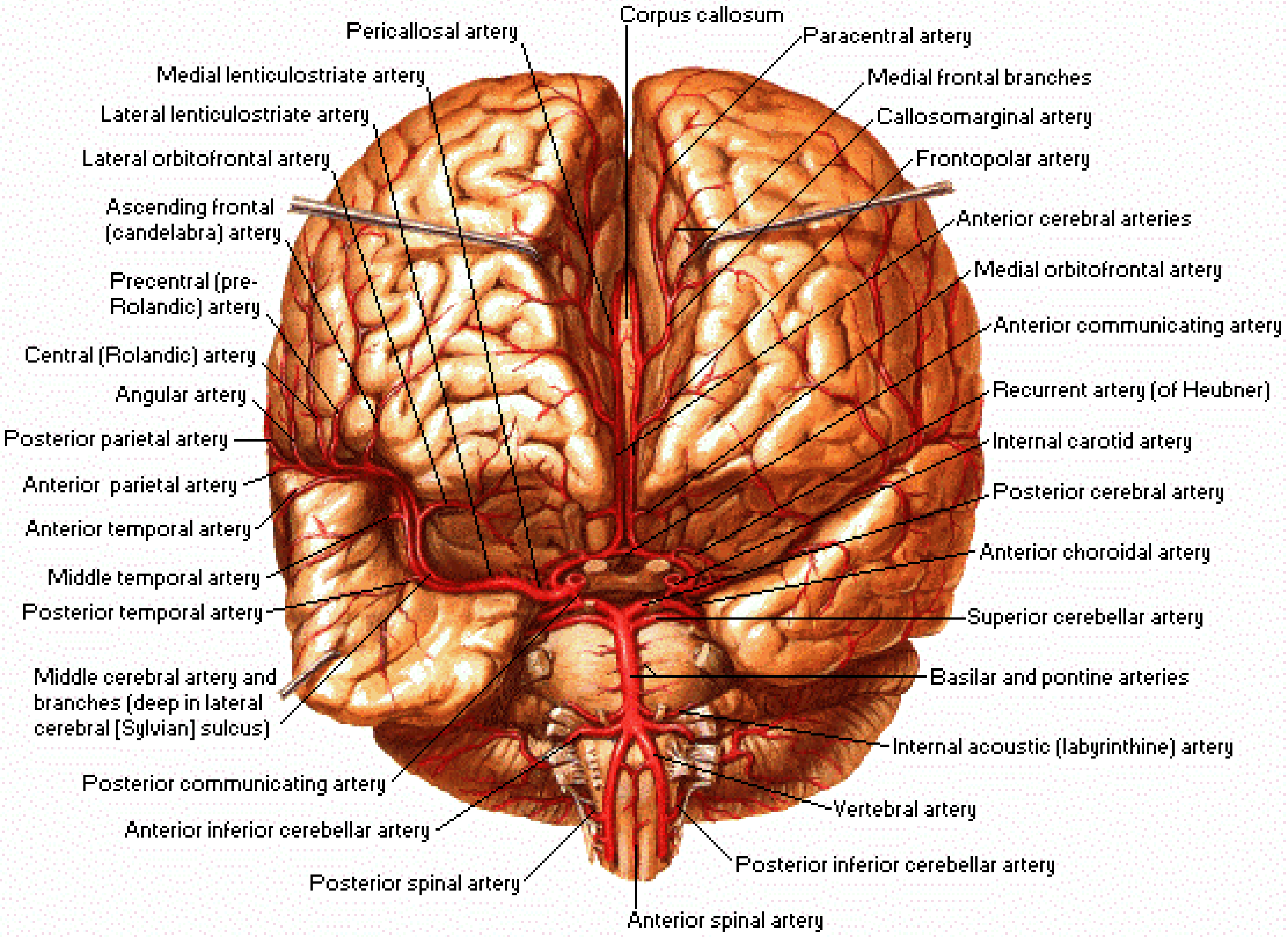
Inferior View



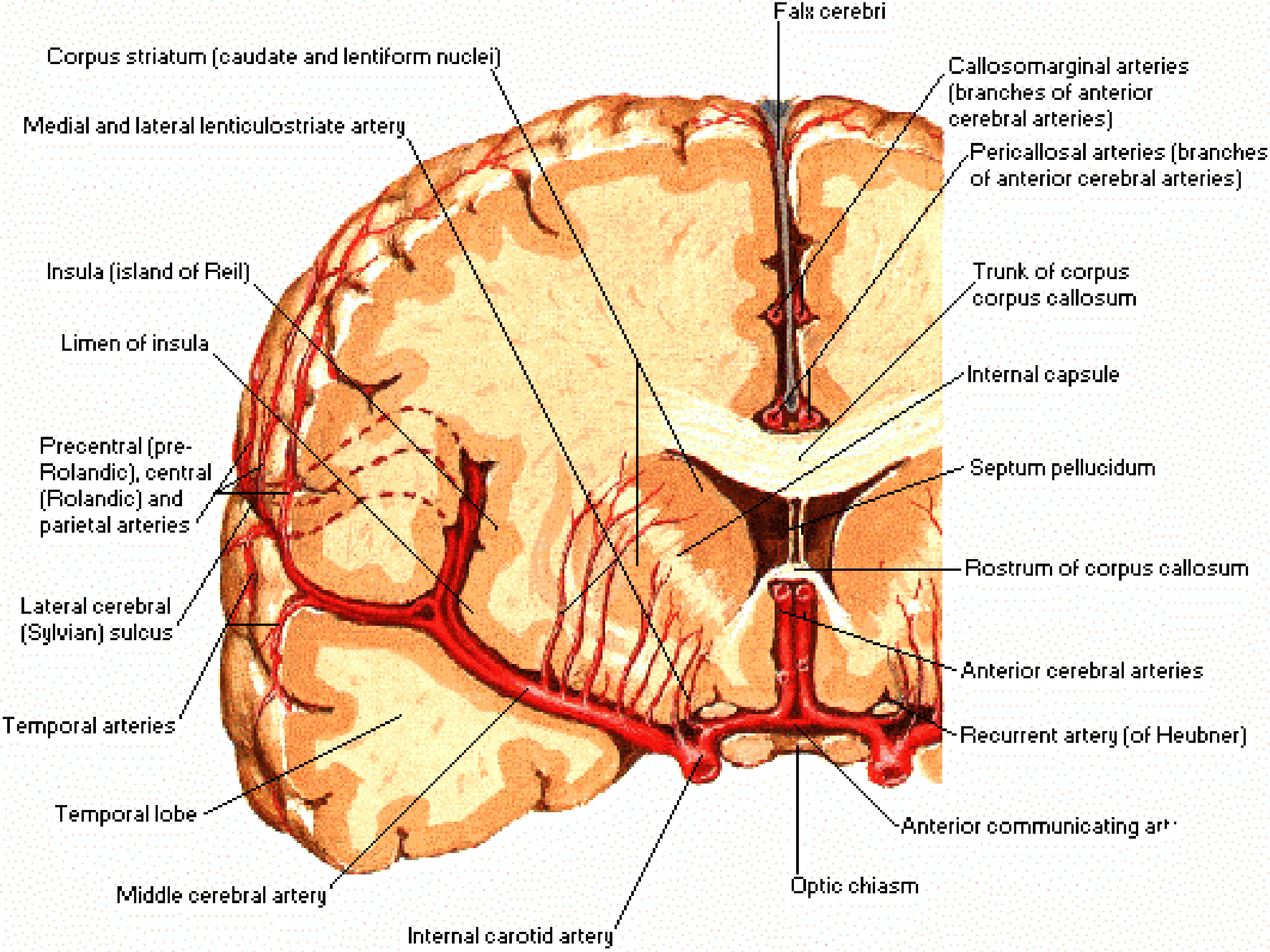
Inferior View



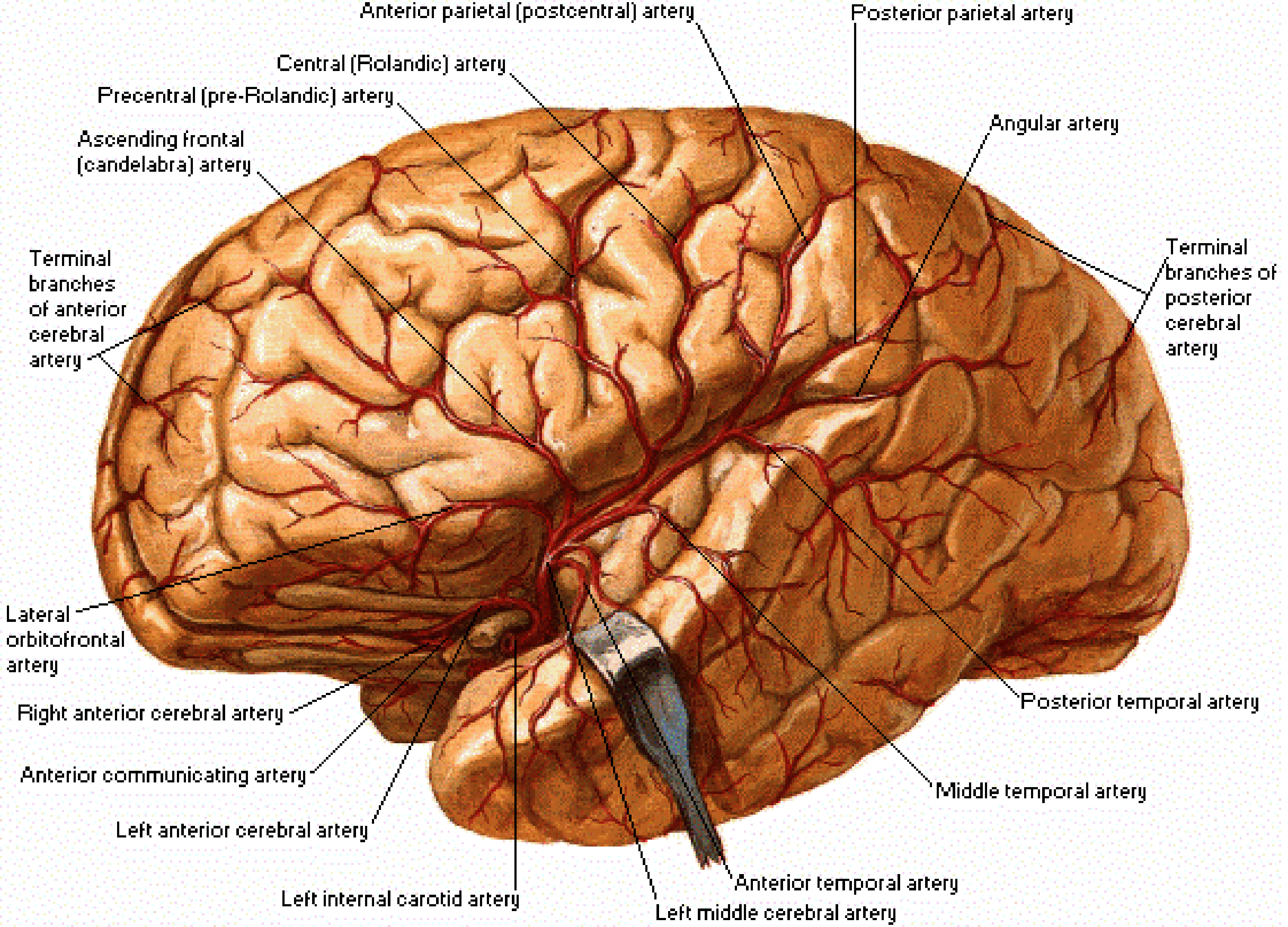
Frontal View



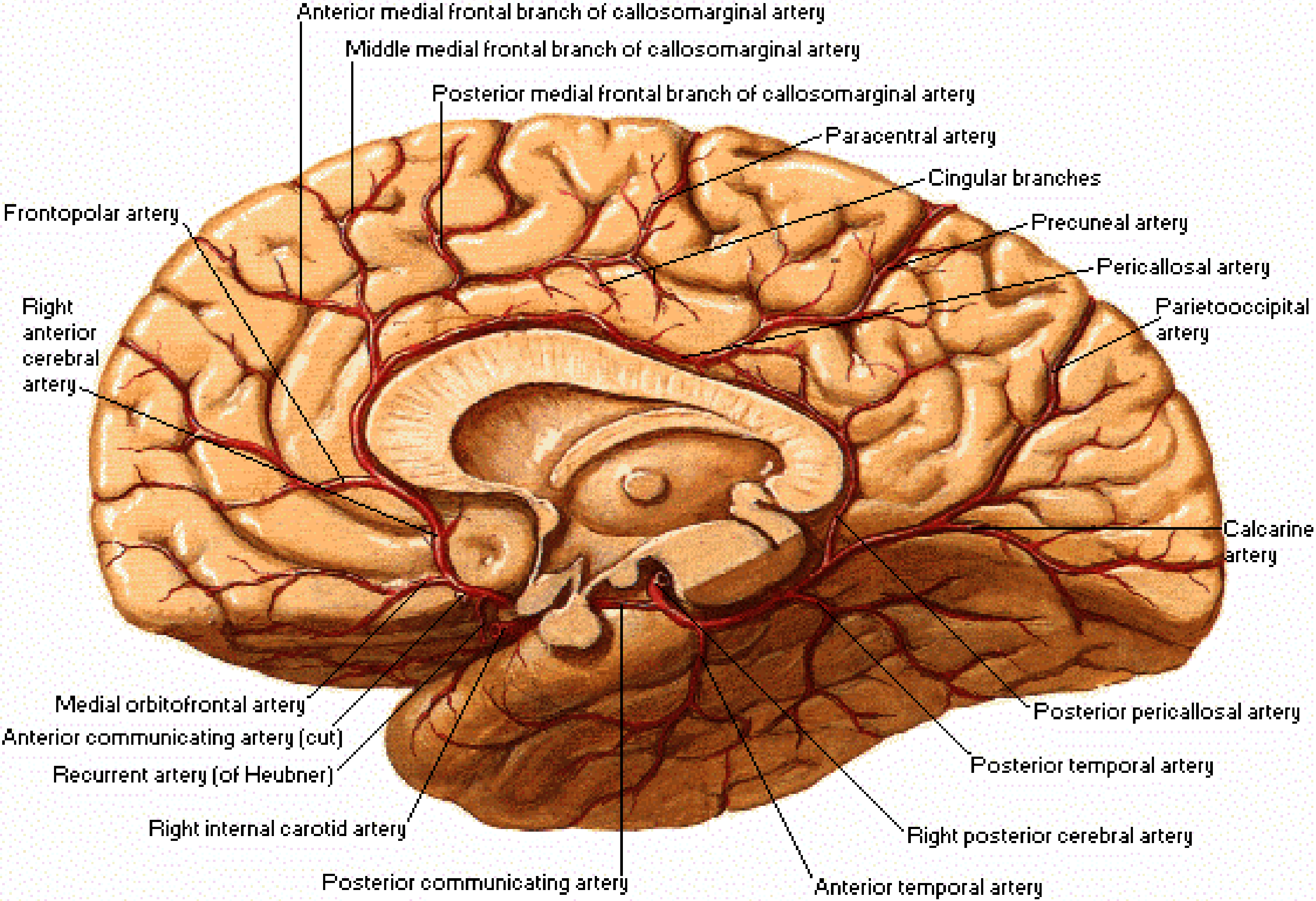
Frontal Section



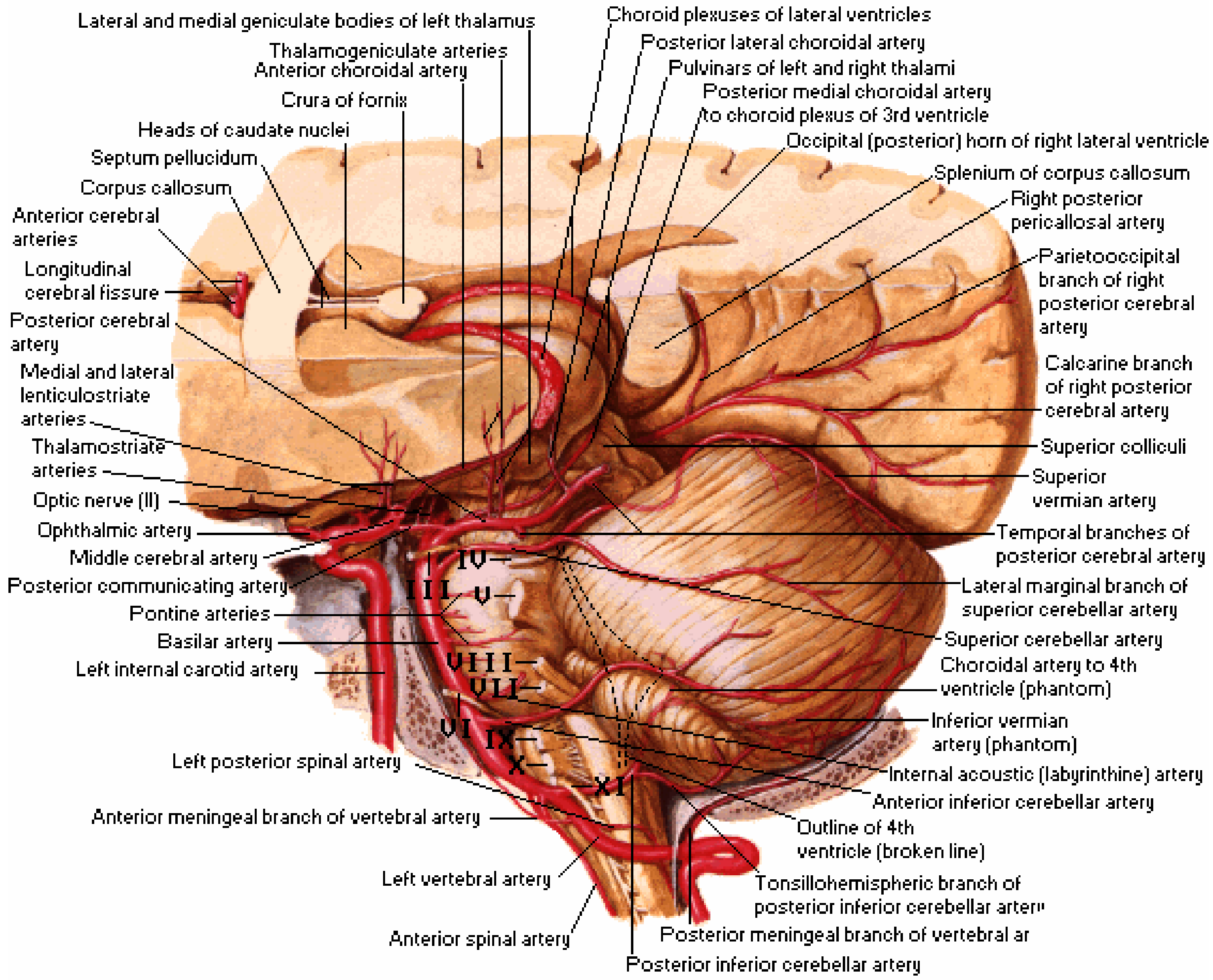
Lateral View



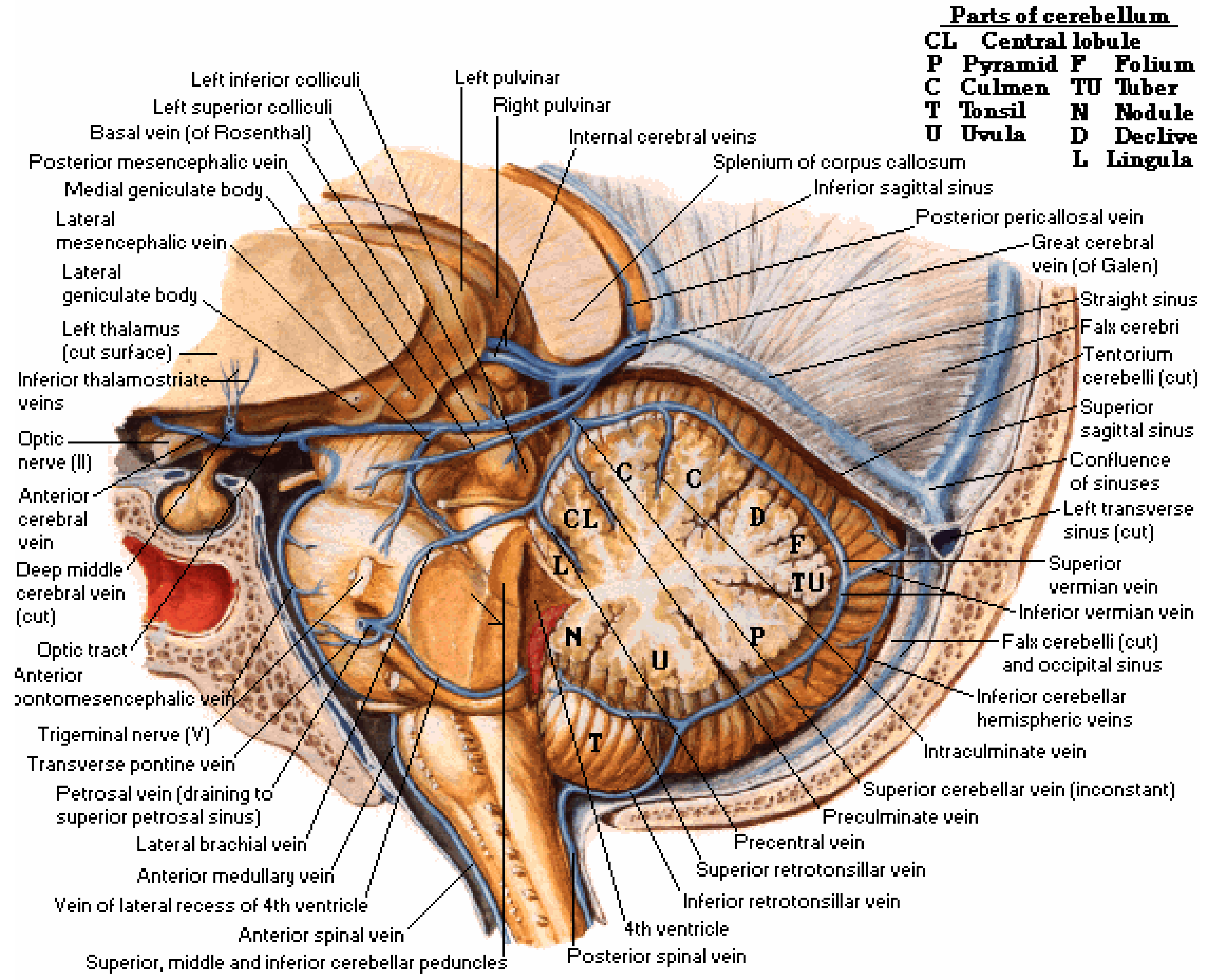
Medial View



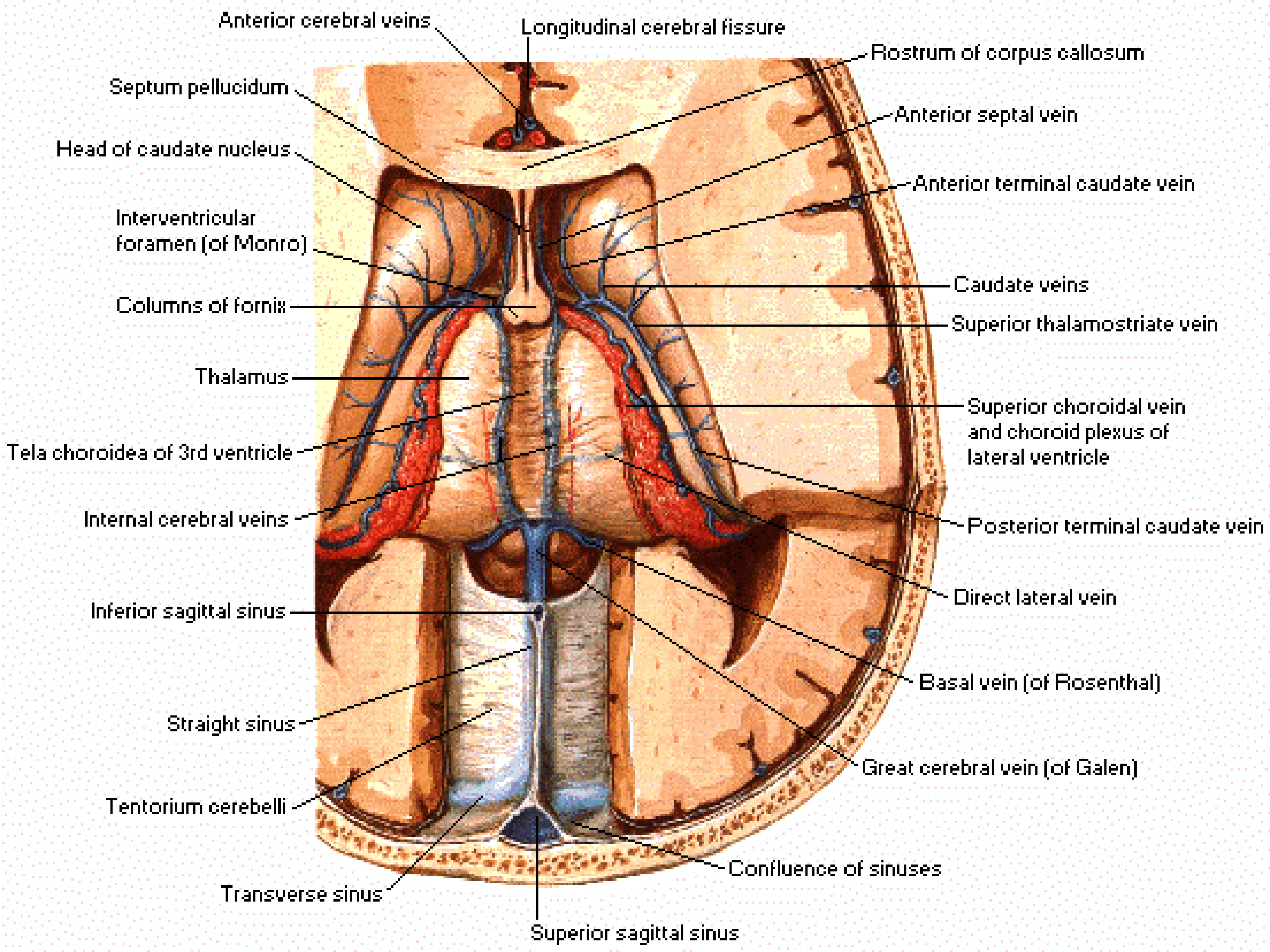
Anterior medial frontal branch of callosomarginal artery
Middle medial frontal branch of callosomarginal artery
Posterior medial frontal branch of callosomarginal artery
Paracentral artery
Cingular branches
Precuneal artery
Pericallosal artery
Parietooccipital artery
Frontopolar artery
Right anterior cerebral artery
Calcarine artery
Medial orbitofrontal artery
Anterior communicating artery (cut)
Recurrent artery (of Heubner)
Right internal carotid artery
Posterior communicating artery
Posterior pericallosal artery
Posterior temporal artery
Right posterior cerebral artery
Anterior temporal artery



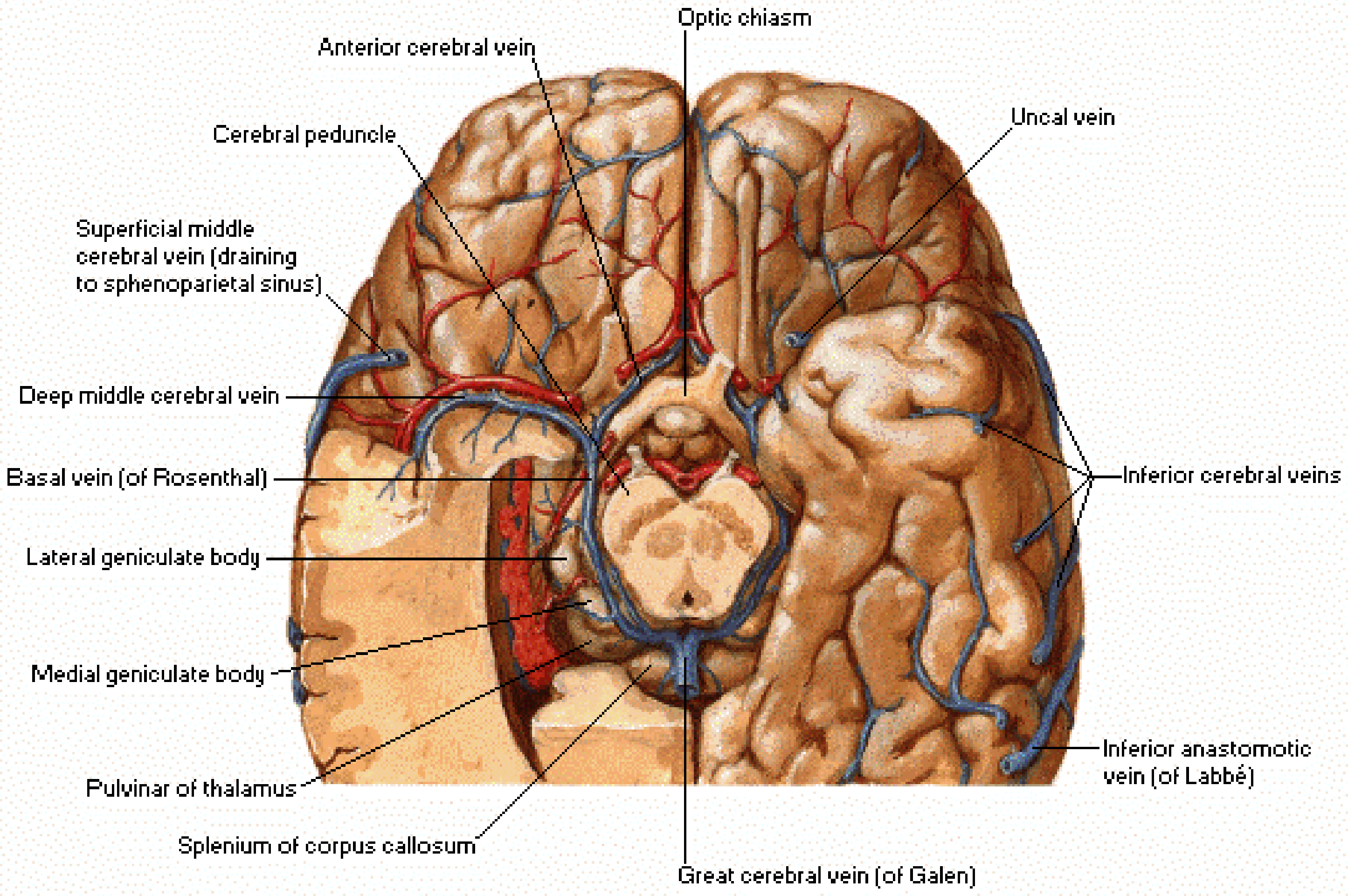
Lateral and medial geniculate bodies of left thalamus
Thalamogeniculate arteries
Anterior choroidal artery
Crura of fornix
Heads of caudate nuclei
Septum pellucidum
Corpus callosum
Anterior cerebral arteries
Longitudinal cerebral fissure
Posterior cerebral artery
Medial and lateral lenticulostriate arteries
Thalamostriate arteries
Optic nerve (II)
Ophthalmic artery
Middle cerebral artery
Posterior communicating artery
Pontine arteries
Basilar artery
Left internal carotid artery
Left posterior spinal artery
Anterior meningeal branch of vertebral artery
Left vertebral artery
Anterior spinal artery
Choroid plexuses of lateral ventricles
Posterior lateral choroidal artery
Pulvinars of left and right thalami
Posterior medial choroidal artery to choroid plexus of 3rd ventricle
Occipital (posterior) horn of right lateral ventricle
Splenium of corpus callosum
Right posterior pericallosal artery
Parietooccipital branch of right posterior cerebral artery
Calcarine branch of right posterior cerebral artery
Superior colliculi
Superior vermian artery
Temporal branches of posterior cerebral artery
Lateral marginal branch of superior cerebellar artery
Superior cerebellar artery
Choroidal artery to 4th ventricle (phantom)
Inferior vermian artery (phantom)
Internal acoustic (labyrinthine) artery
Anterior inferior cerebellar artery
Outline of 4th ventricle (broken line)
Tonsillohemispheric branch of posterior inferior cerebellar arter
Posterior meningeal branch of vertebral ar
Posterior inferior cerebellar artery
IV
III
V
VIII
VII
VI
IX
X
XI

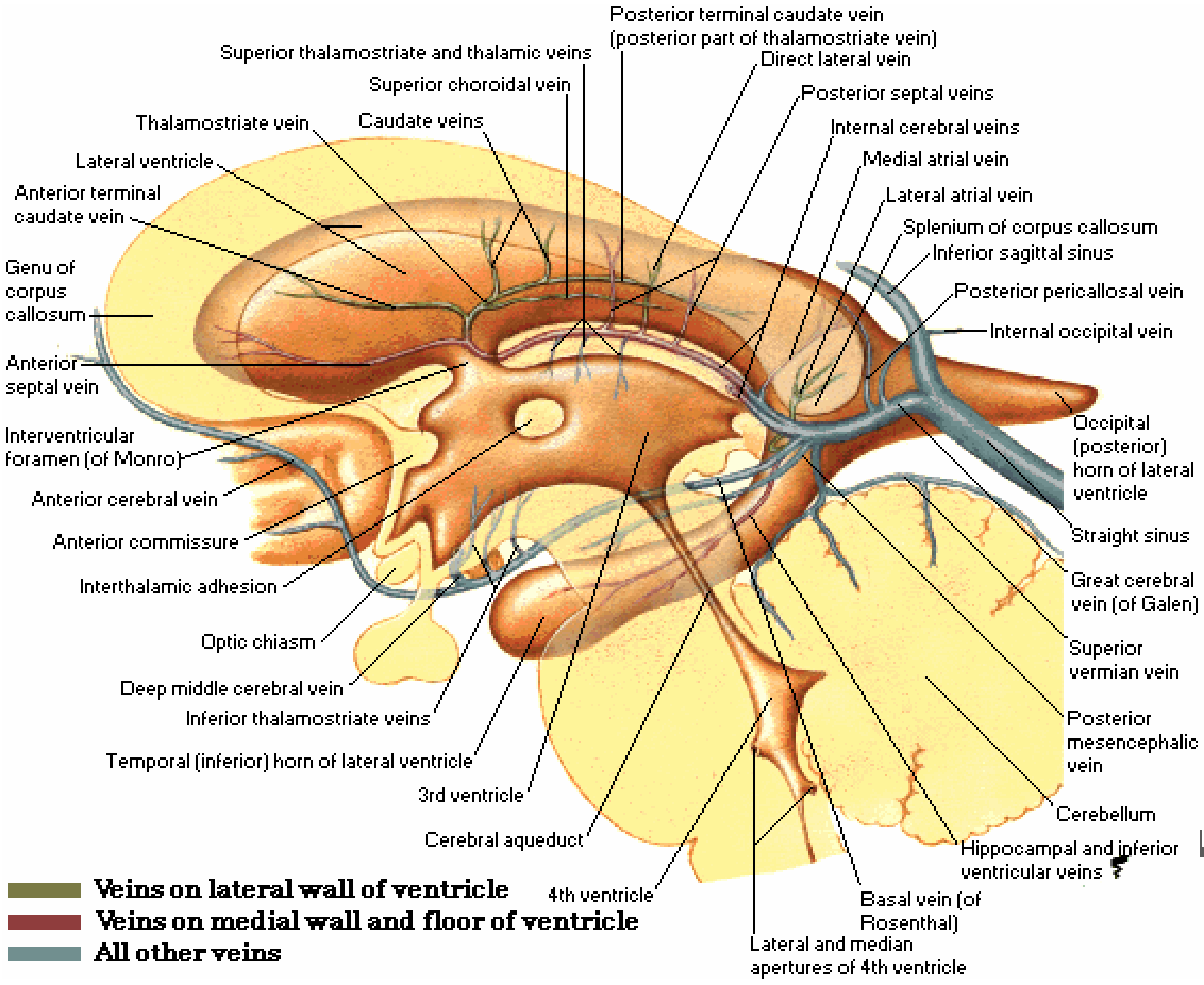

Parts of cerebellum
CL Central lobule
P Pyramid
F Folium
C Culmen
TU Tuber
T Tonsil
N Nodule
U Uvula
D Declive
L Lingula
Left inferior colliculi
Left pulvinar
Left superior colliculi
Right pulvinar
Basal vein (of Rosenthal)
Internal cerebral veins
Posterior mesencephalic vein
Splenium of corpus callosum
Medial geniculate body
Inferior sagittal sinus
Lateral mesencephalic vein
Posterior pericallosal vein
Great cerebral vein (of Galen)
Lateral geniculate body
Straight sinus
Left thalamus (cut surface)
Falx cerebri
Inferior thalamostriate veins
Tentorium cerebelli (cut)
Optic nerve (II)
Superior sagittal sinus
Confluence of sinuses
Anterior cerebral vein
Left transverse sinus (cut)
Deep middle cerebral vein (cut)
Superior vermian vein
Inferior vermian vein
Optic tract
Falx cerebelli (cut) and occipital sinus
Anterior pontomesencephalic vein
Inferior cerebellar hemispheric veins
Trigeminal nerve (V)
Intraculminate vein
Transverse pontine vein
Superior cerebellar vein (inconstant)
Petrosal vein (draining to superior petrosal sinus)
Preculminate vein
Lateral brachial vein
Precentral vein
Anterior medullary vein
Superior retrotonsillar vein
Vein of lateral recess of 4th ventricle
Inferior retrotonsillar vein
Anterior spinal vein
4th ventricle
Superior, middle and inferior cerebellar peduncles
Posterior spinal vein
C
C
CL
D
F
L
TU
N
P
U
T

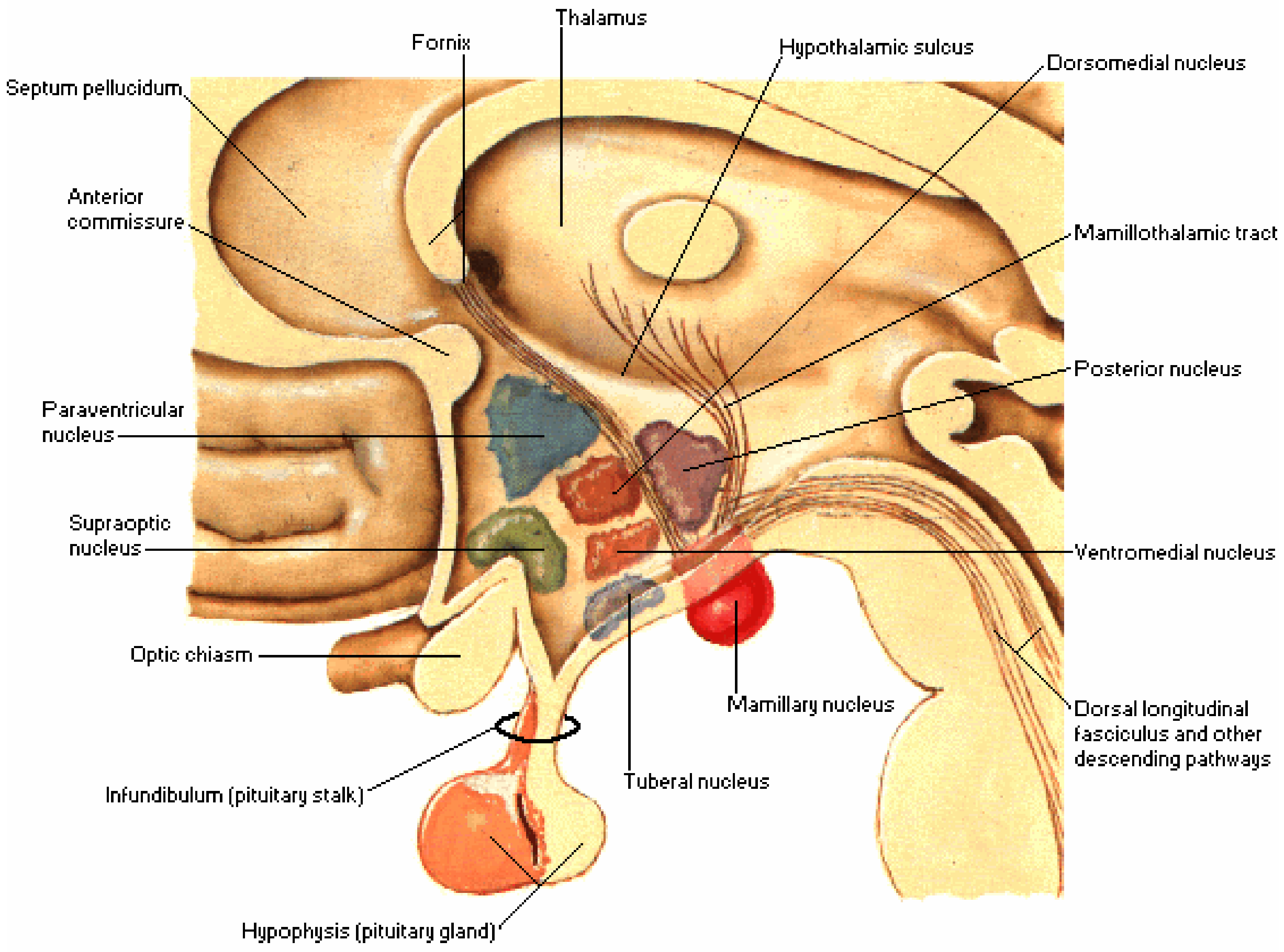
Superior View

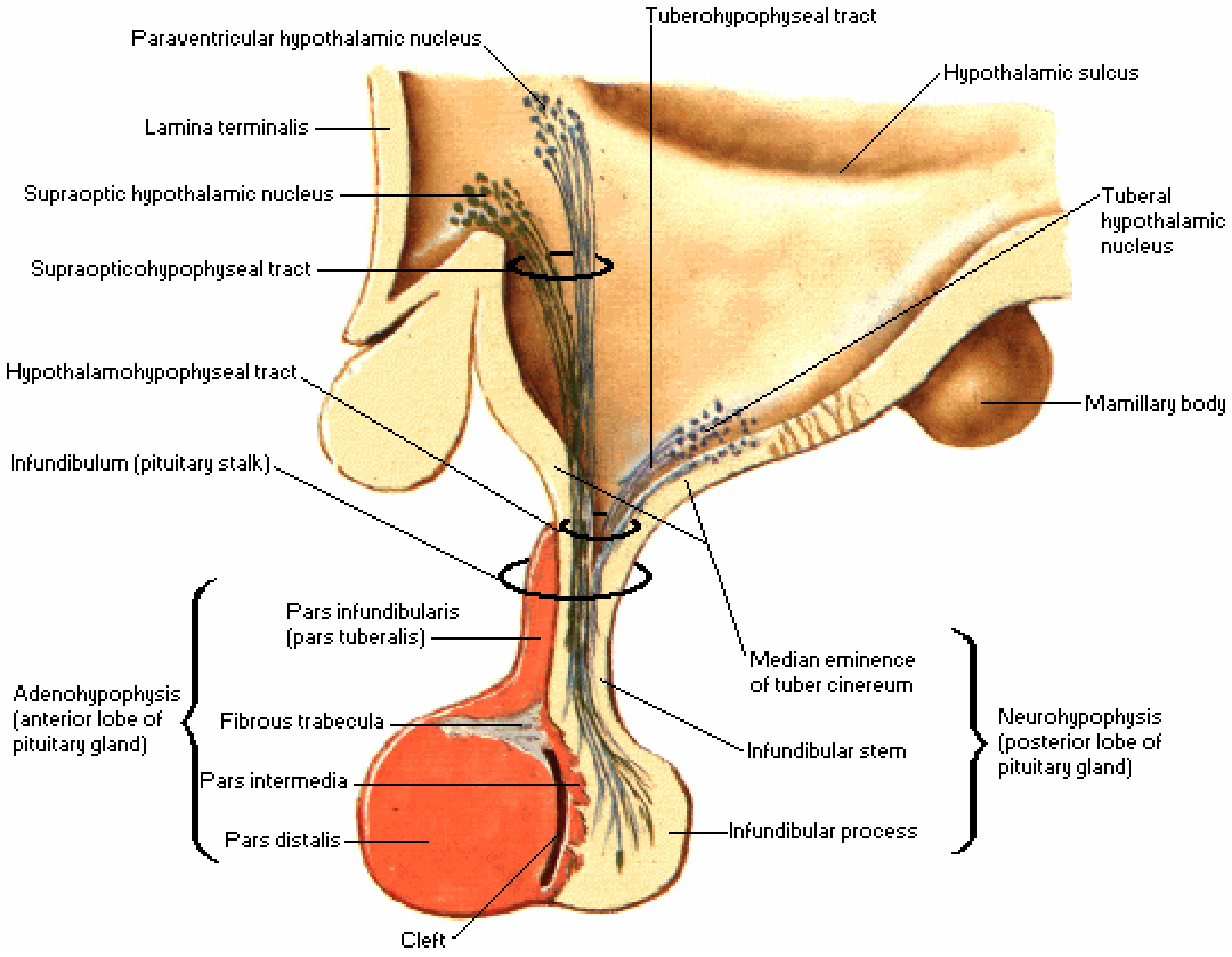


Inferior View

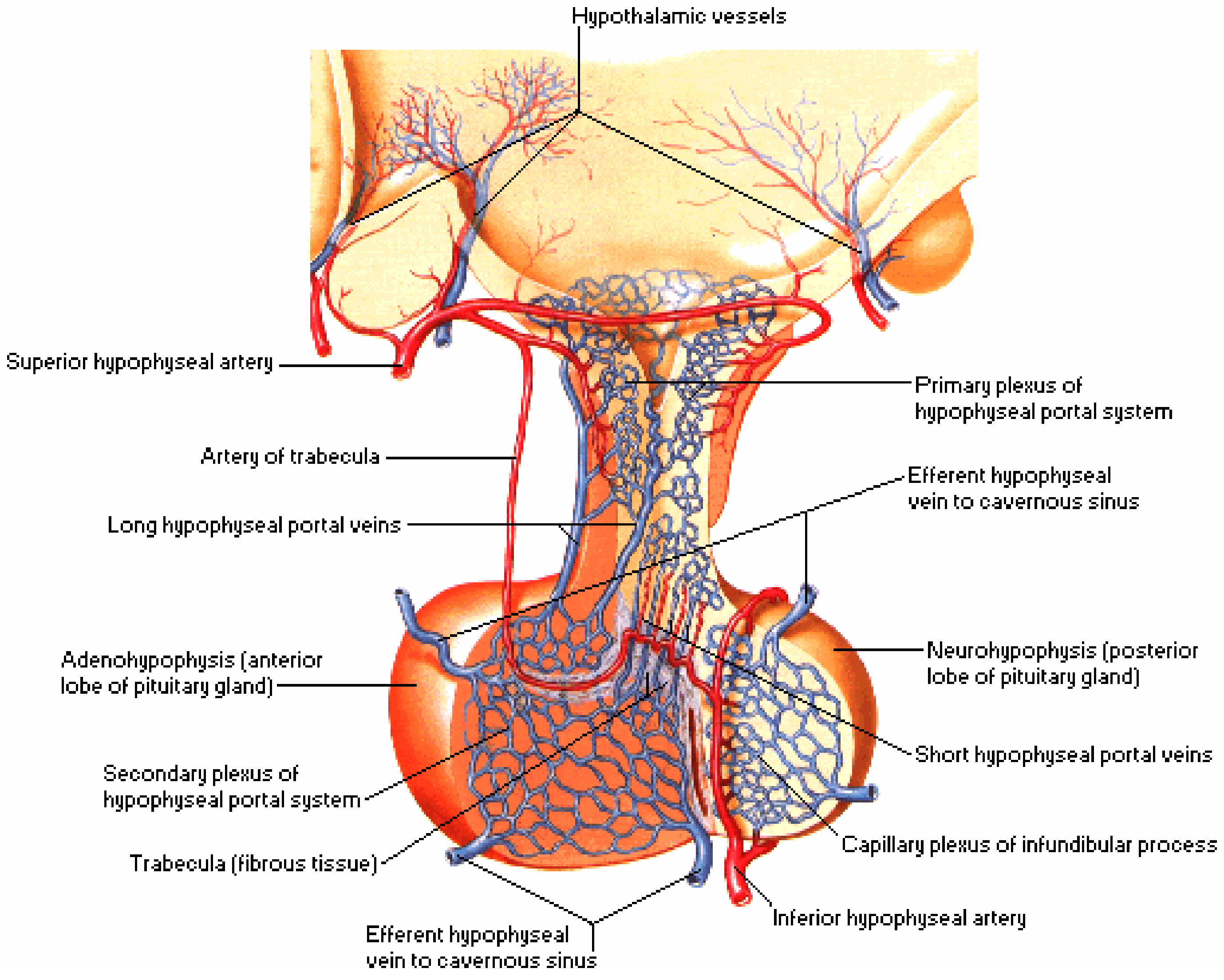



Posterior terminal caudate vein (posterior part of thalamostriate vein)
Superior thalamostriate and thalamic veins
Direct lateral vein
Superior choroidal vein
Posterior septal veins
Thalamostriate vein
Caudate veins
Internal cerebral veins
Lateral ventricle
Medial atrial vein
Anterior terminal caudate vein
Lateral atrial vein
Splenium of corpus callosum
Inferior sagittal sinus
Genu of corpus callosum
Posterior pericallosal vein
Internal occipital vein
Anterior septal vein
Occipital (posterior) horn of lateral ventricle
Interventricular foramen (of Monro)
Anterior cerebral vein
Straight sinus
Anterior commissure
Great cerebral vein (of Galen)
Interthalamic adhesion
Superior vermian vein
Optic chiasm
Deep middle cerebral vein
Posterior mesencephalic vein
Inferior thalamostriate veins
Temporal (inferior) horn of lateral ventricle
Cerebellum
3rd ventricle
Hippocampal and inferior ventricular veins
Cerebral aqueduct
4th ventricle
Basal vein (of Rosenthal)
Lateral and median apertures of 4th ventricle
Veins on lateral wall of ventricle
Veins on medial wall and floor of ventricle
All other veins

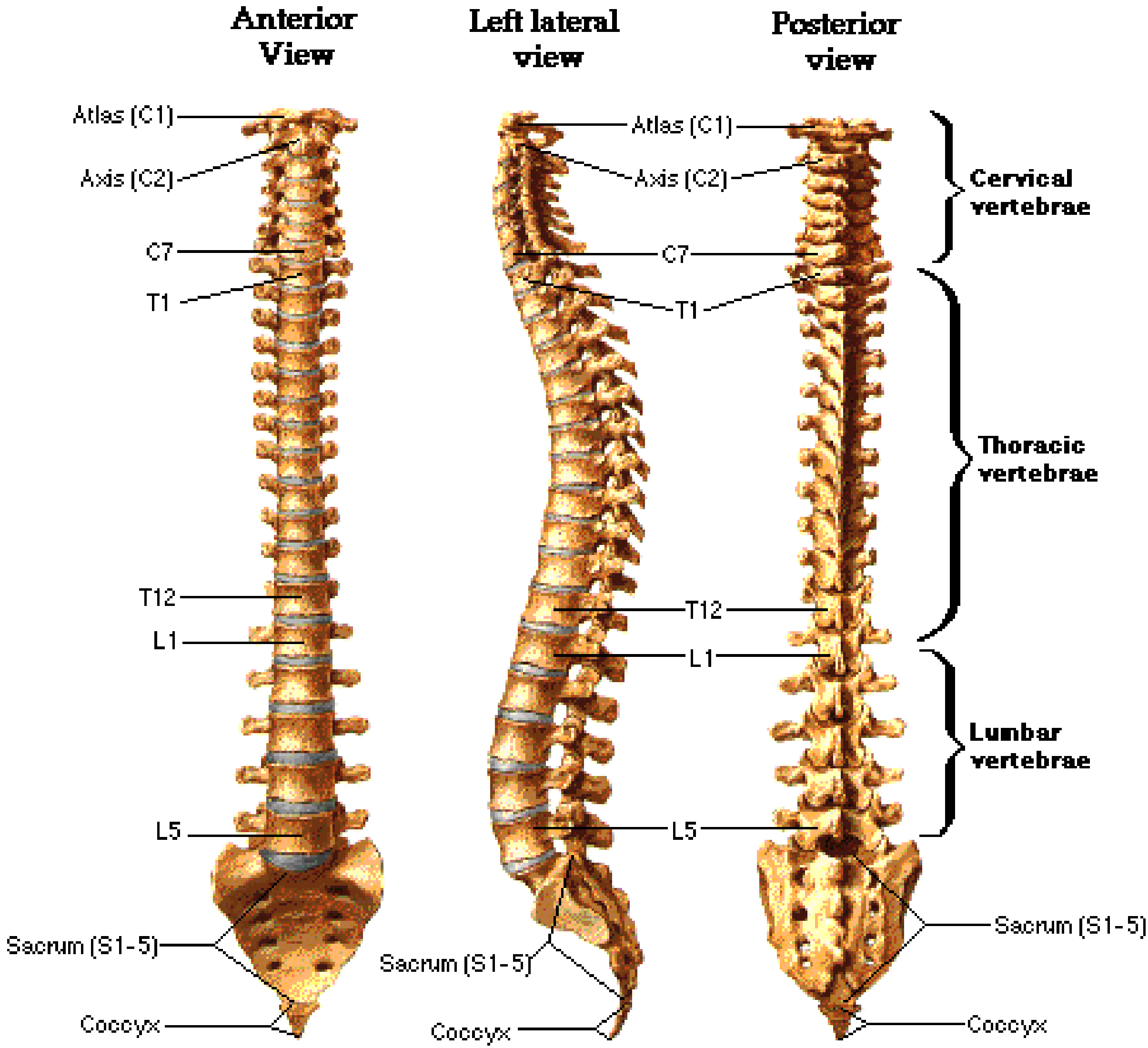

Thalamus
Fornix
Hypothalamic sulcus
Dorsomedial nucleus
Septum pellucidum
Anterior commissure
Mamillothalamic tract
Posterior nucleus
Paraventricular nucleus
Supraoptic nucleus
Ventromedial nucleus
Optic chiasm
Mamillary nucleus
Dorsal longitudinal fasciculus and other descending pathways
Tuberal nucleus
Infundibulum (pituitary stalk)
Hypophysis (pituitary gland)



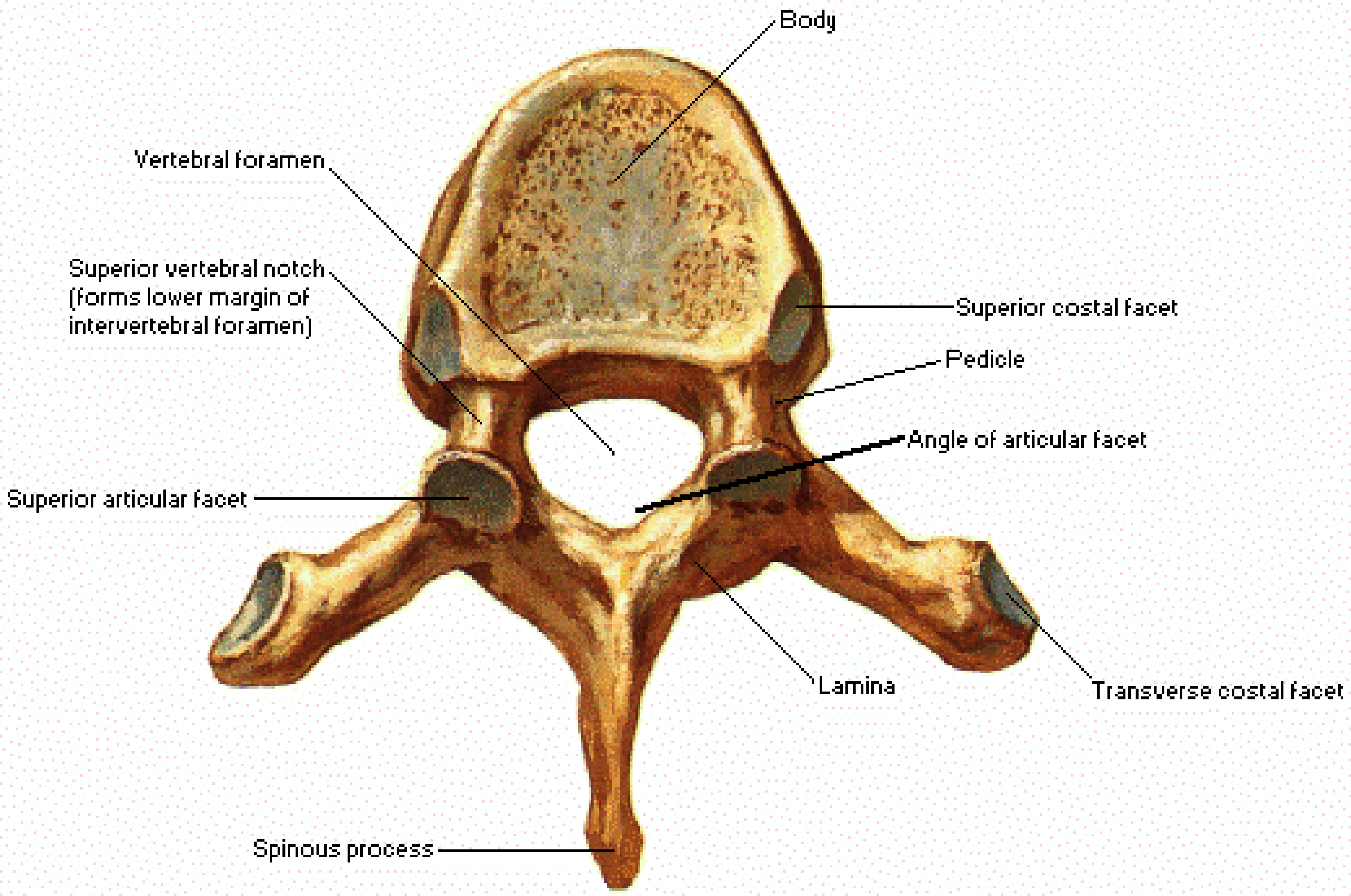
Tuberohypophyseal tract
Paraventricular hypothalamic nucleus
Hypothalamic sulcus
Lamina terminalis
Supraoptic hypothalamic nucleus
Tuberal hypothalamic nucleus
Supraopticohypophyseal tract
Hypothalamohypophyseal tract
Mamillary body
Infundibulum (pituitary stalk)
Pars infundibularis (pars tuberalis)
Median eminence of tuber cinereum
Adenohypophysis (anterior lobe of pituitary gland)
Fibrous trabecula
Neurohypophysis (posterior lobe of pituitary gland)
Infundibular stem
Pars intermedia
Pars distalis
Infundibular process
Cleft


Hypothalamic vessels
Superior hypophyseal artery
Primary plexus of
hypophyseal portal system
Artery of trabecula
Efferent hypophyseal
vein to cavernous sinus
Long hypophyseal portal veins
Adenohypophysis (anterior
lobe of pituitary gland)
Neurohypophysis (posterior
lobe of pituitary gland)
Short hypophyseal portal veins
Secondary plexus of
hypophyseal portal system
Capillary plexus of infundibular process
Trabecula (fibrous tissue)
Inferior hypophyseal artery
Efferent hypophyseal
vein to cavernous sinus

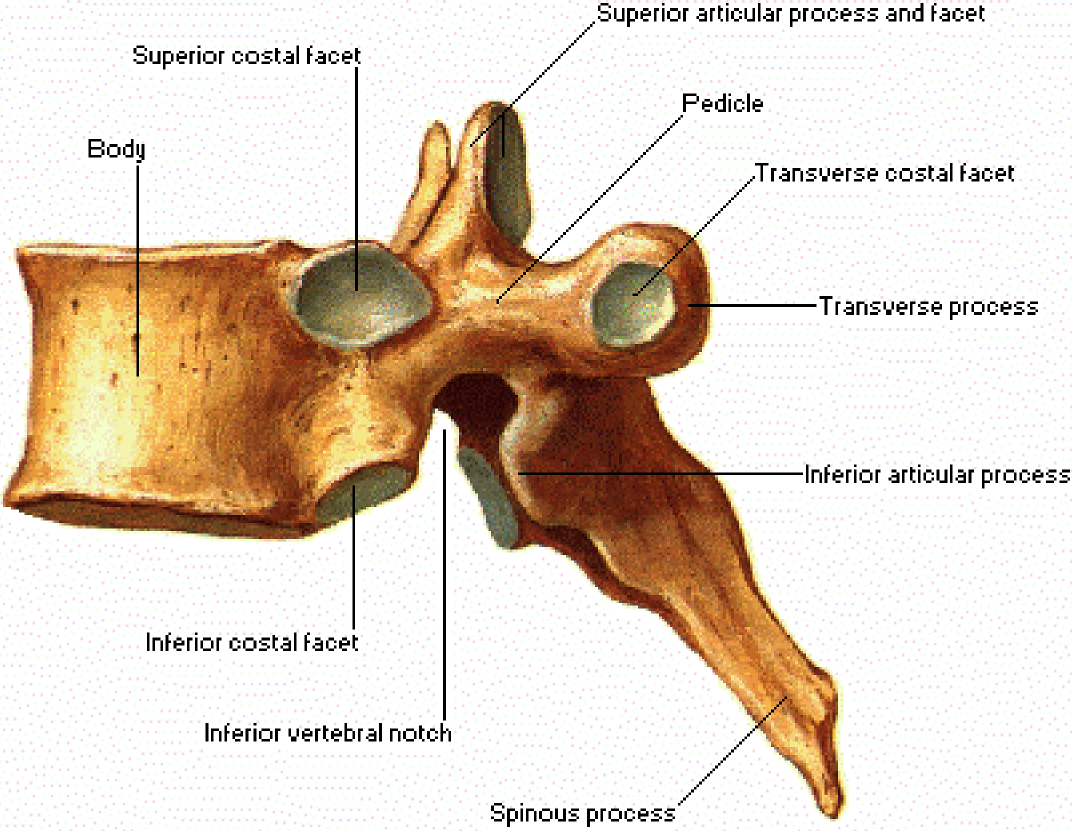
Vertebral Column



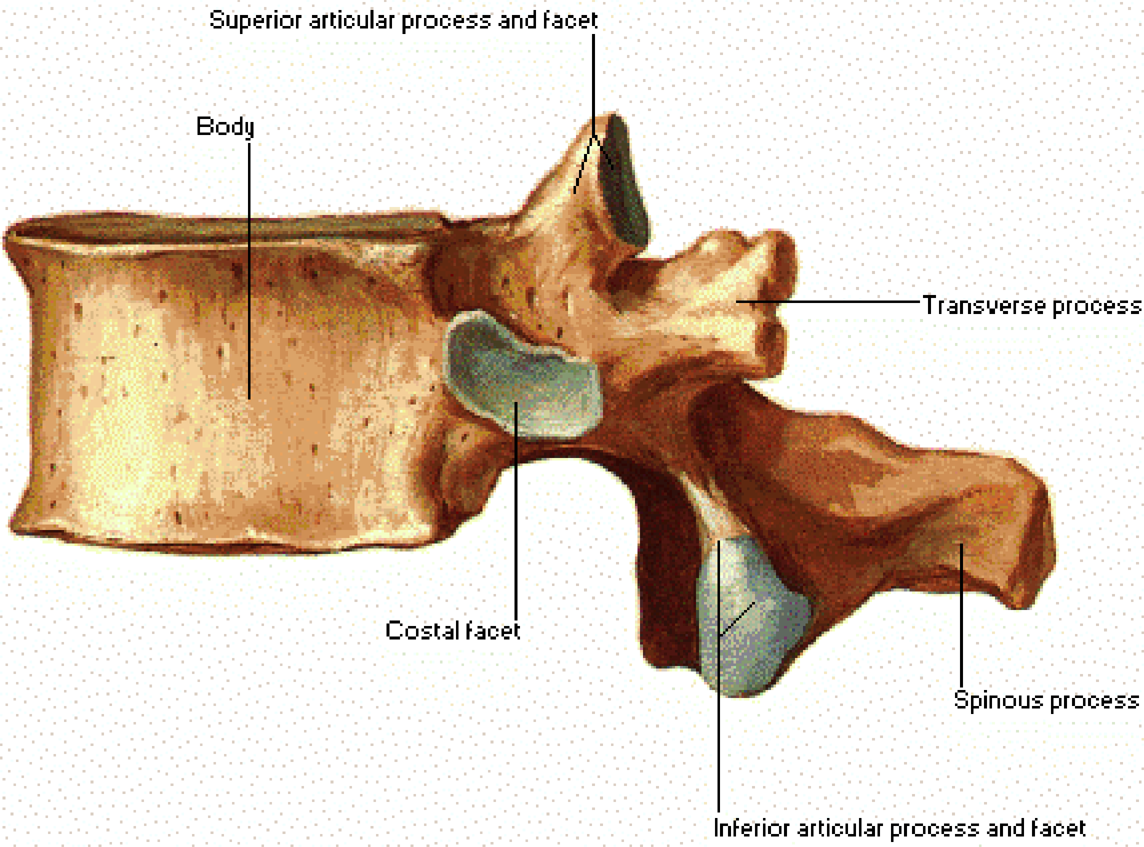
Superior View



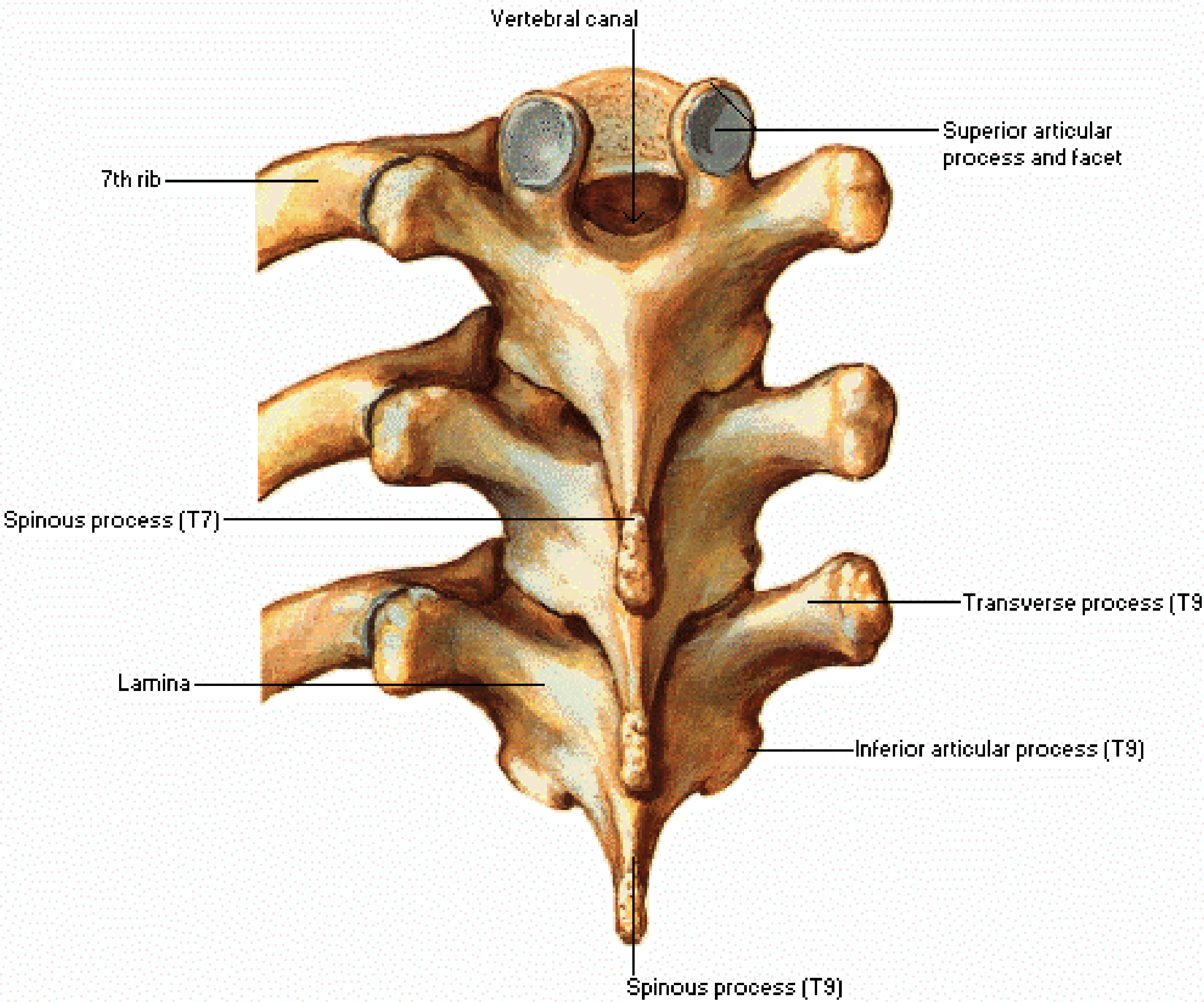
Lateral View



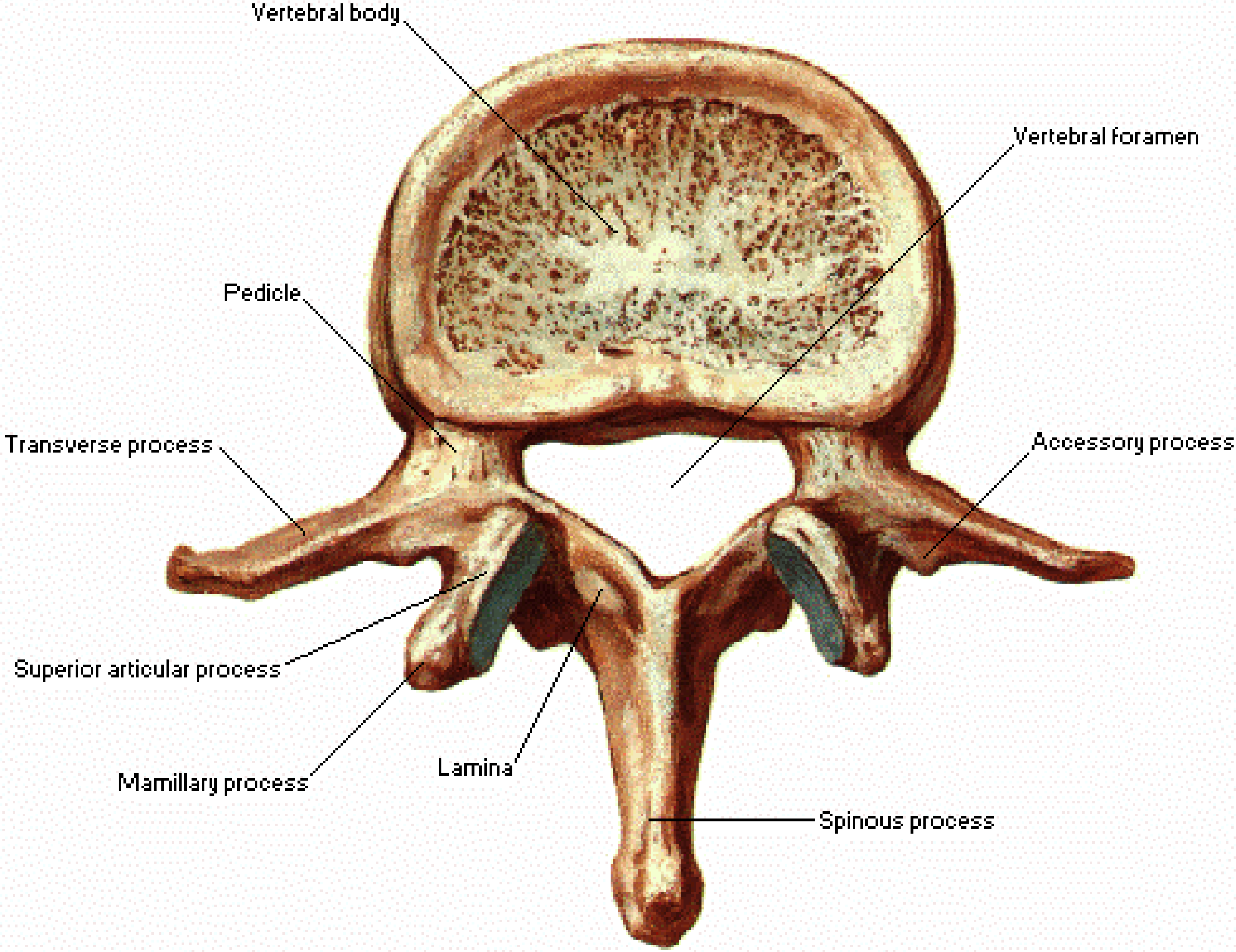
Lateral View



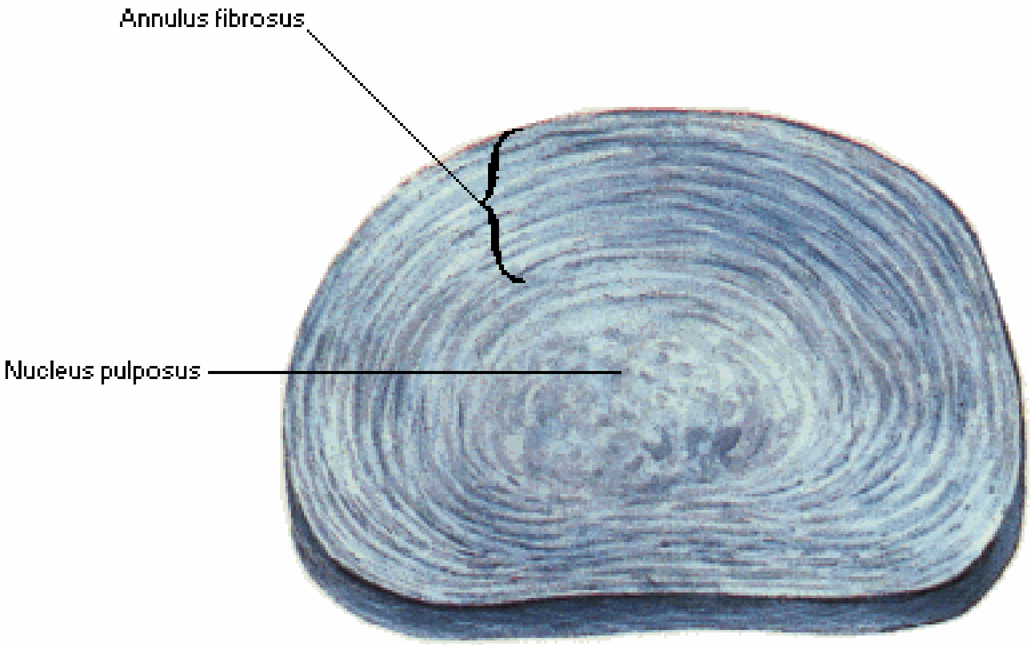
Posterior View



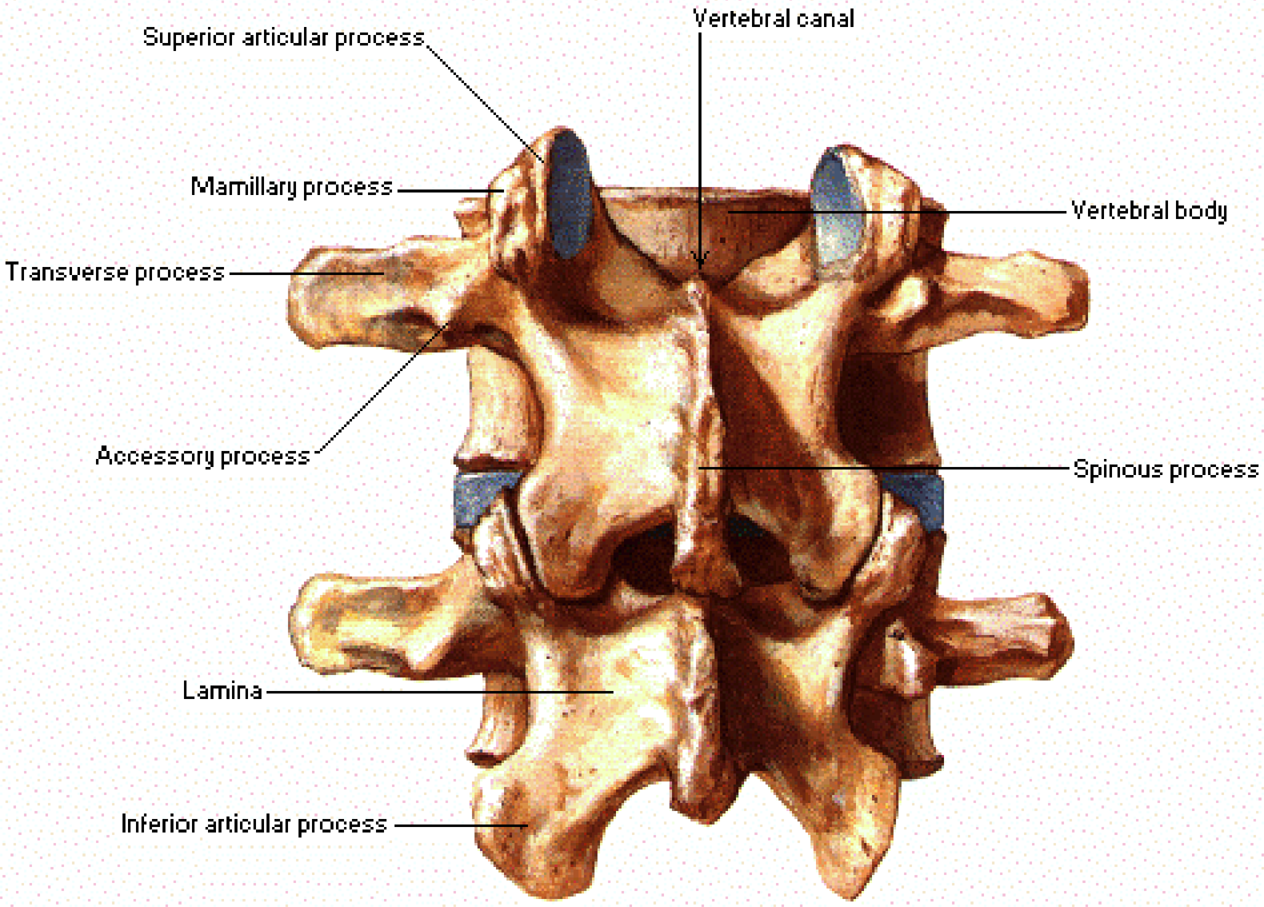
Superior View



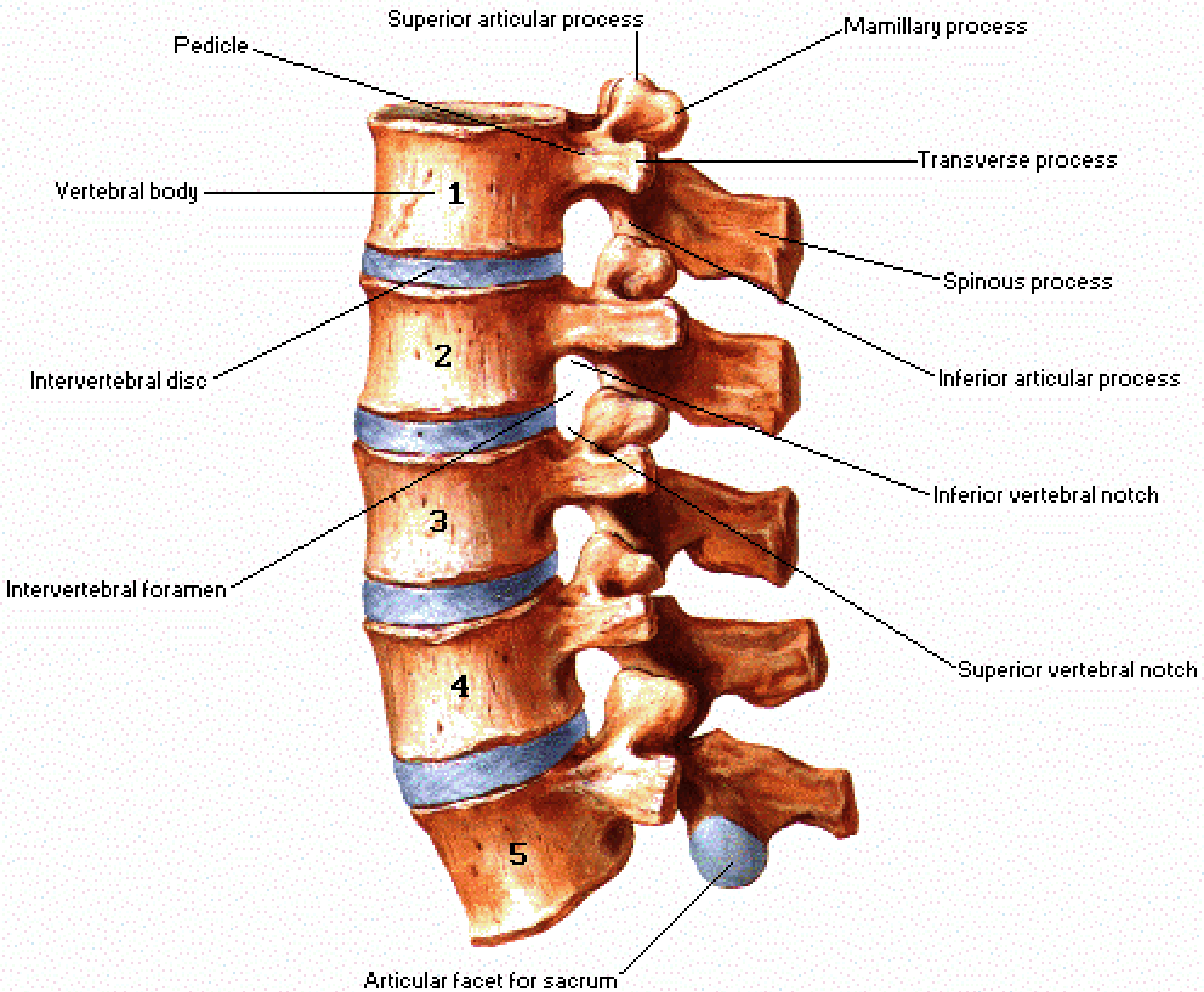
Intervertebral Disc



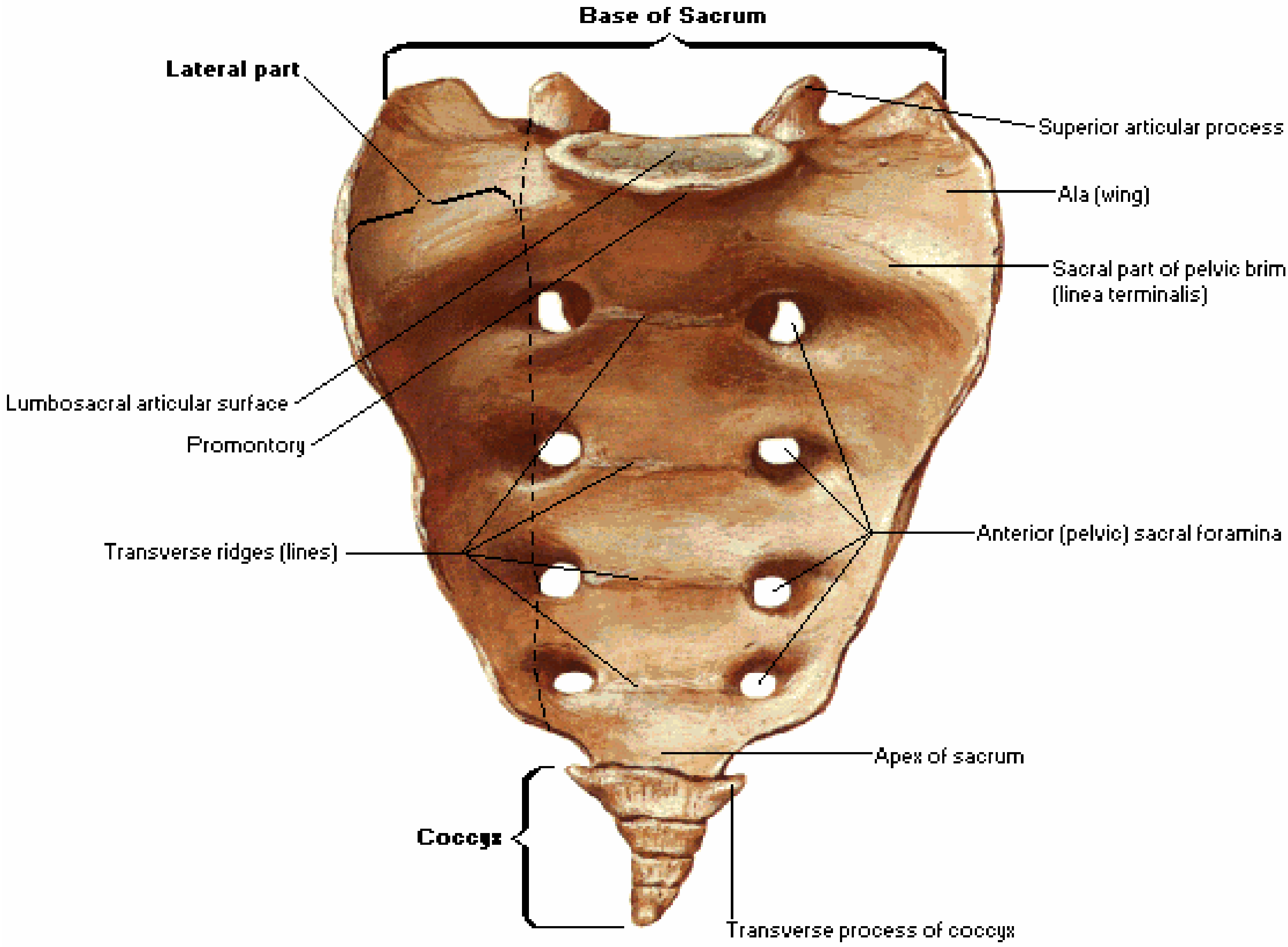
Posterior View



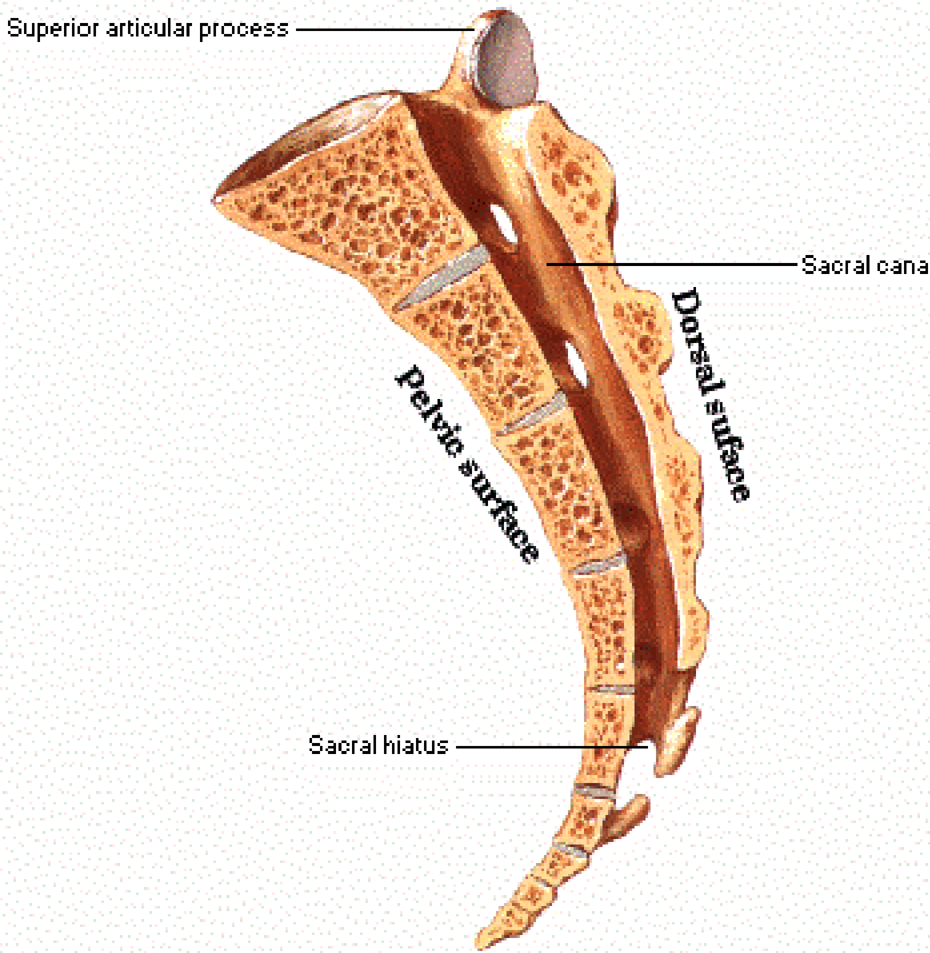
Left Lateral View



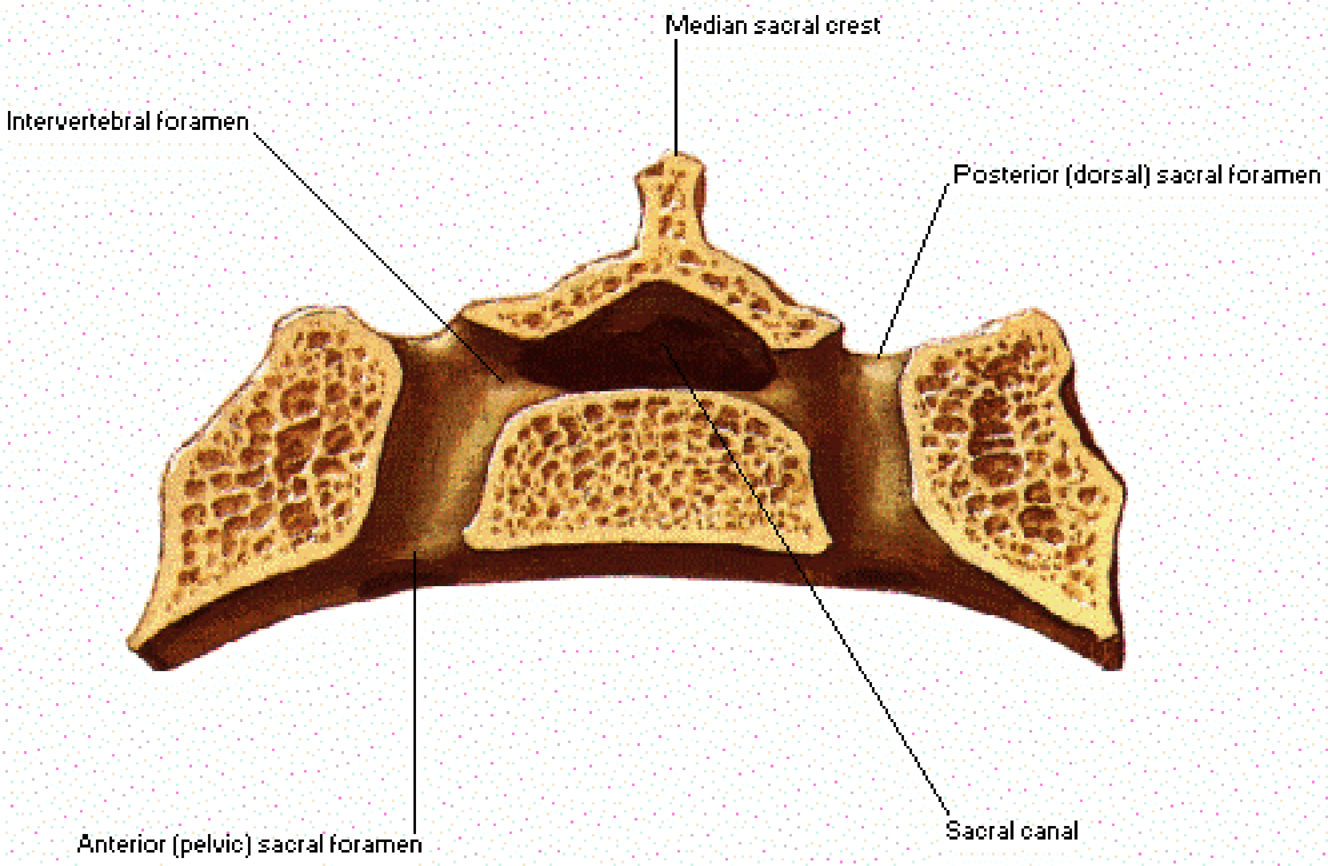
Pelvic Surface



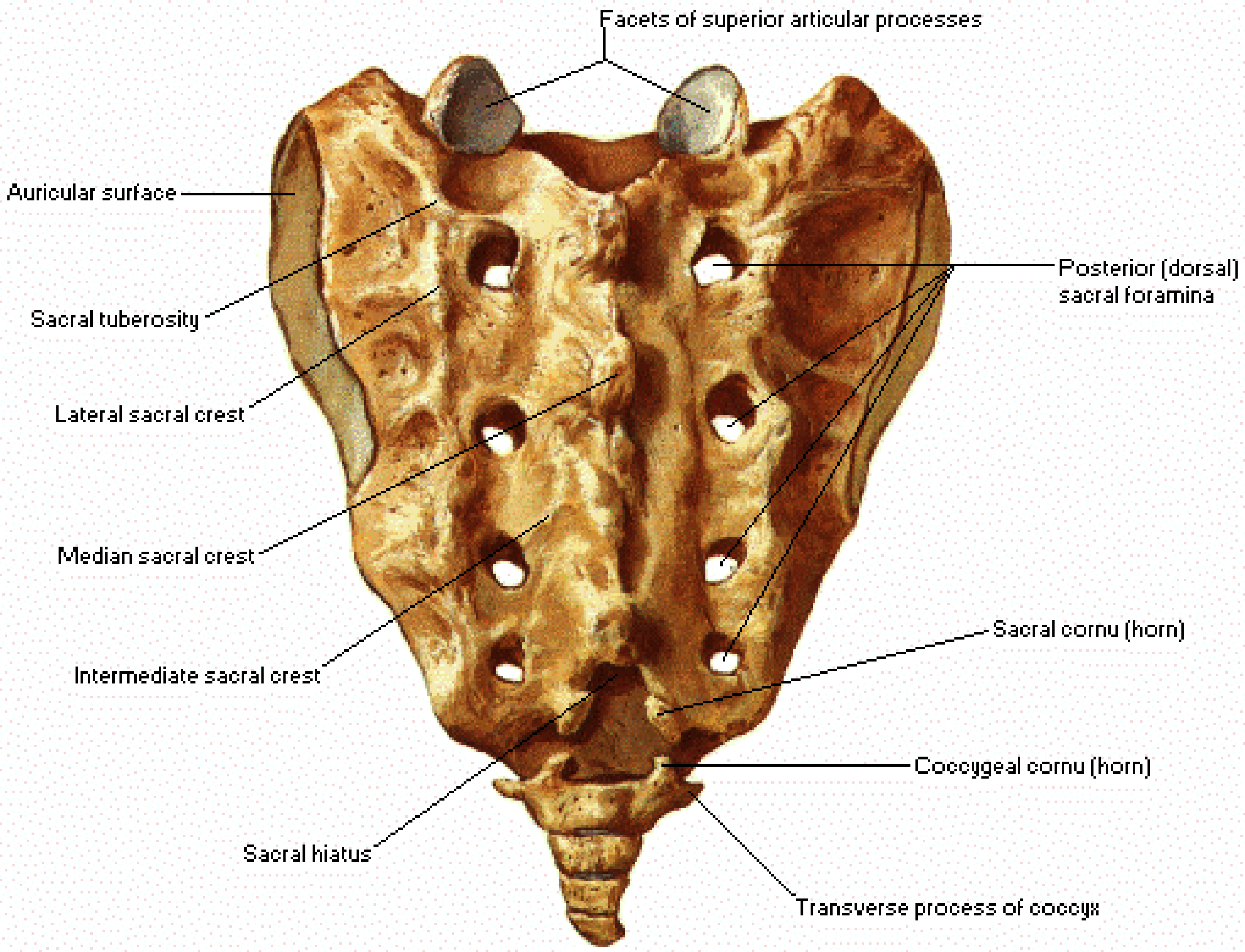
Median Sagittal Section



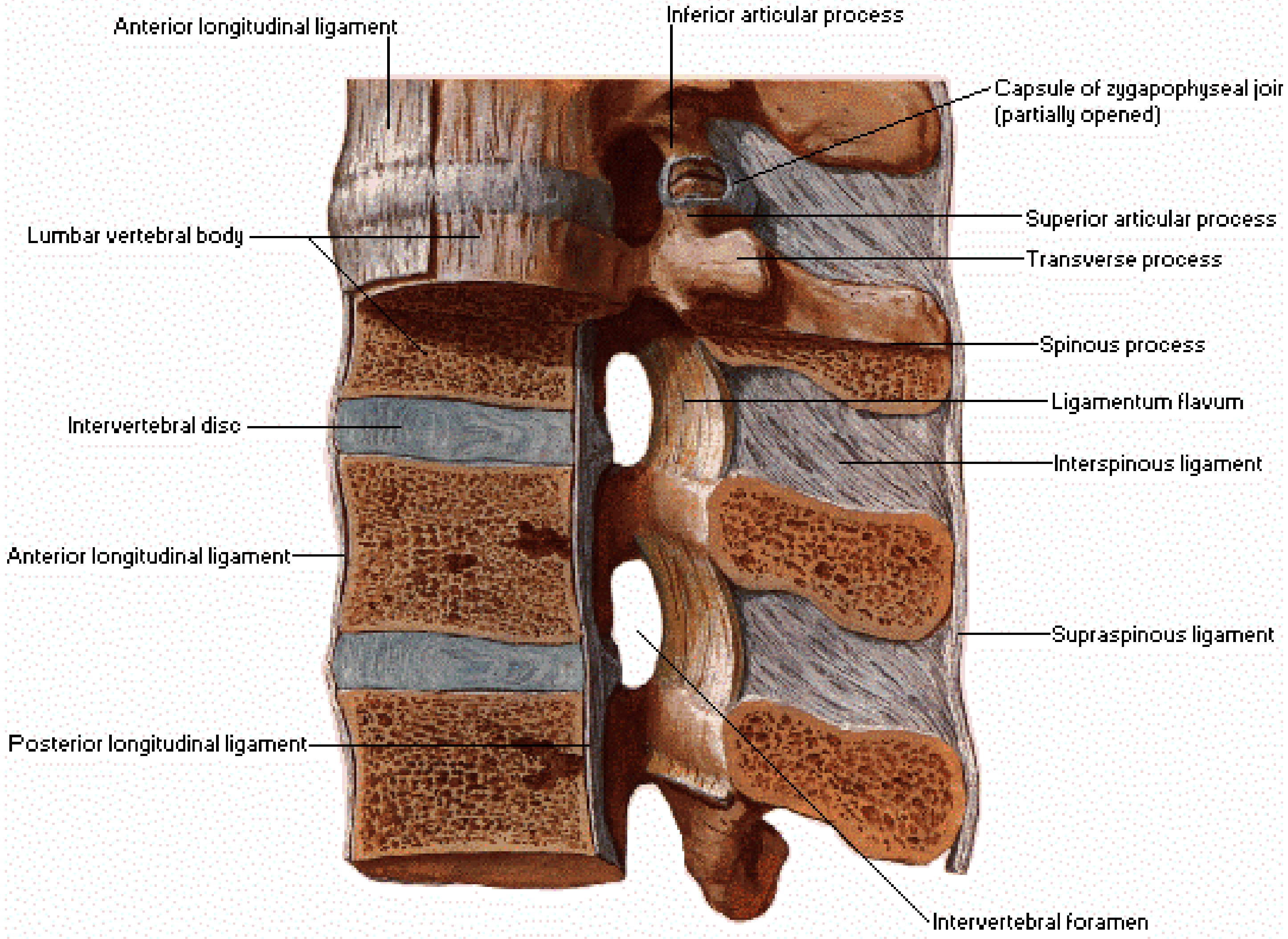
Transverse Section through S1 Foramina



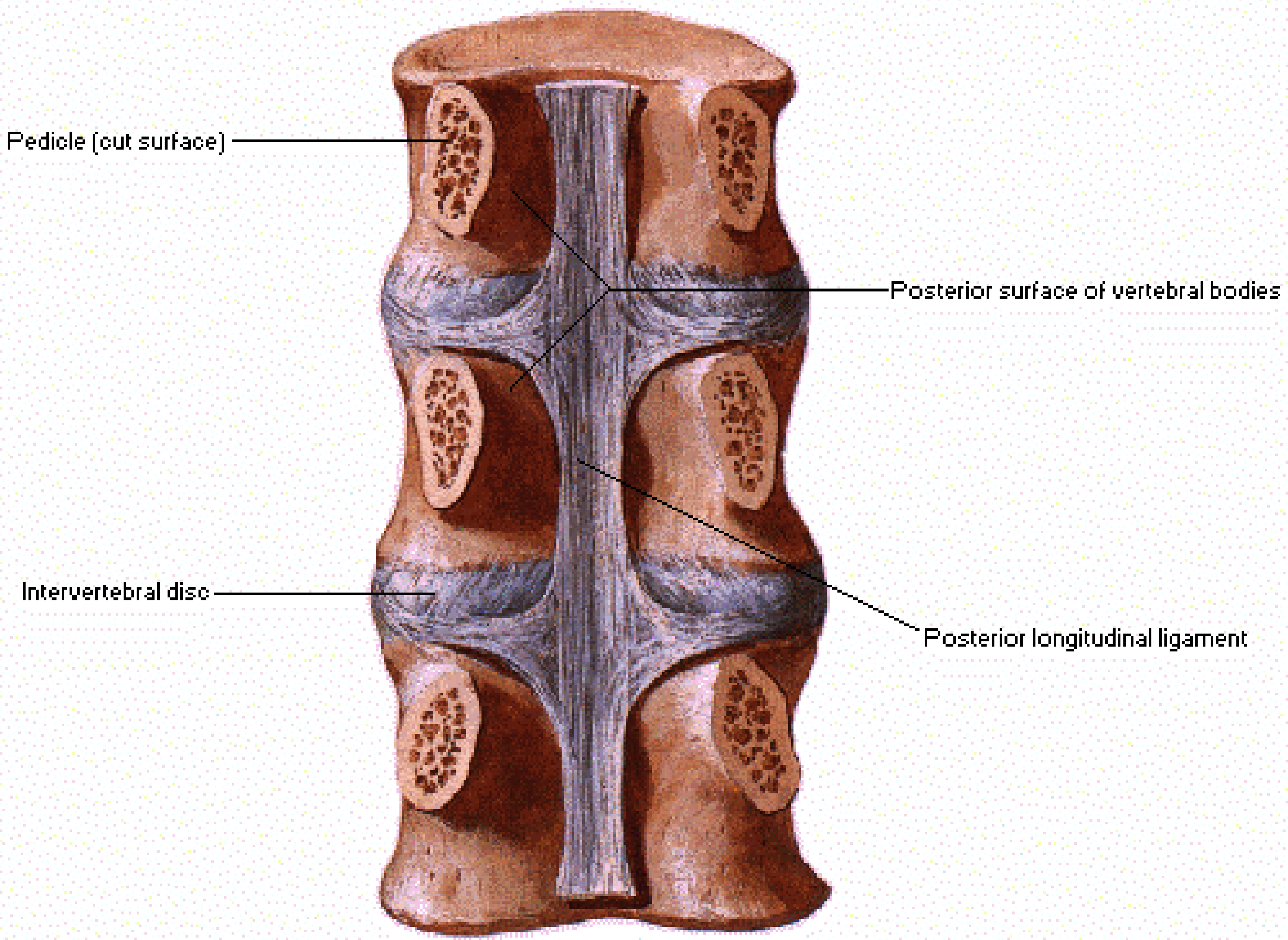
Dorsal Surface



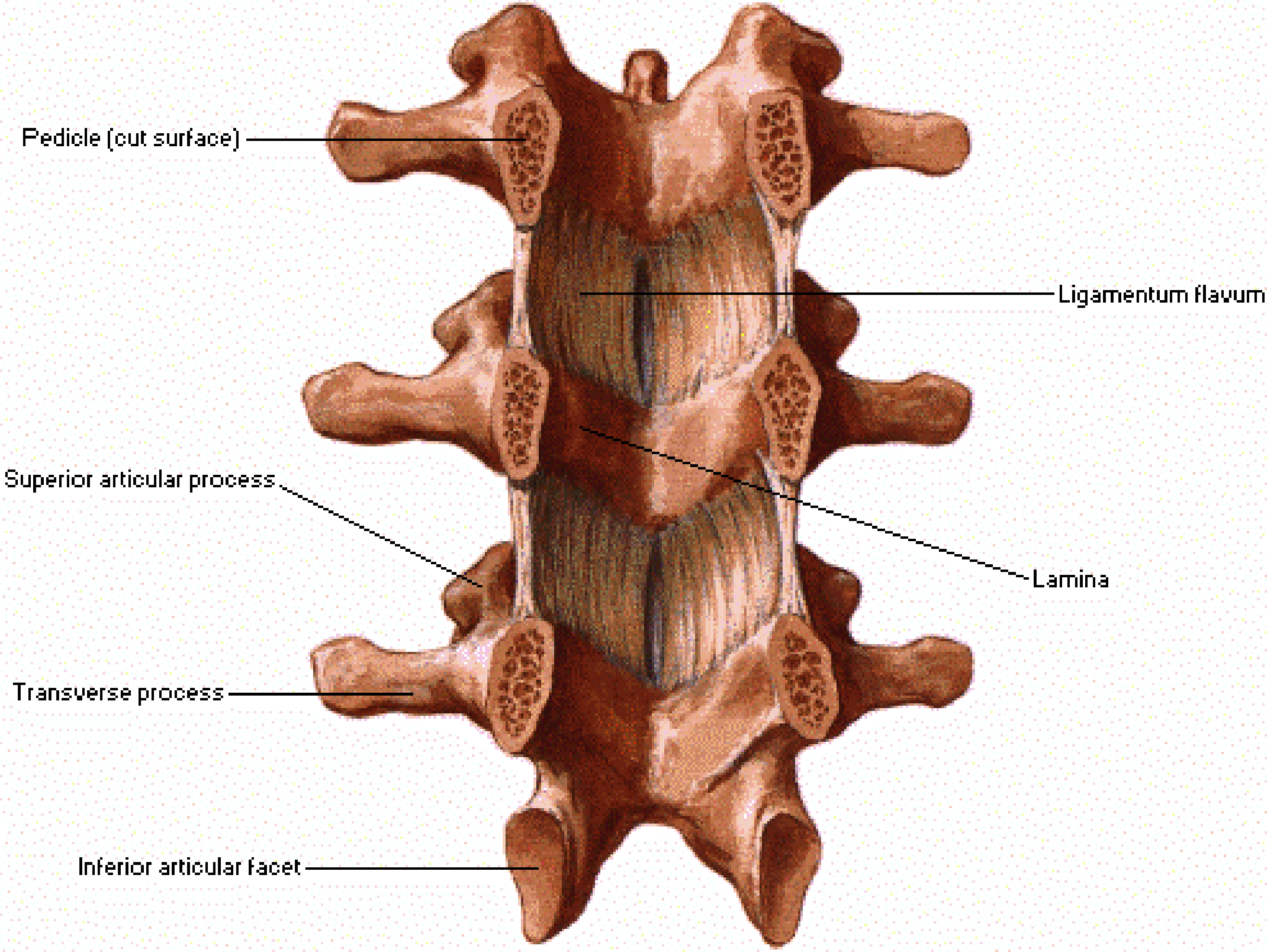
Left Lateral View - Partially Sectioned



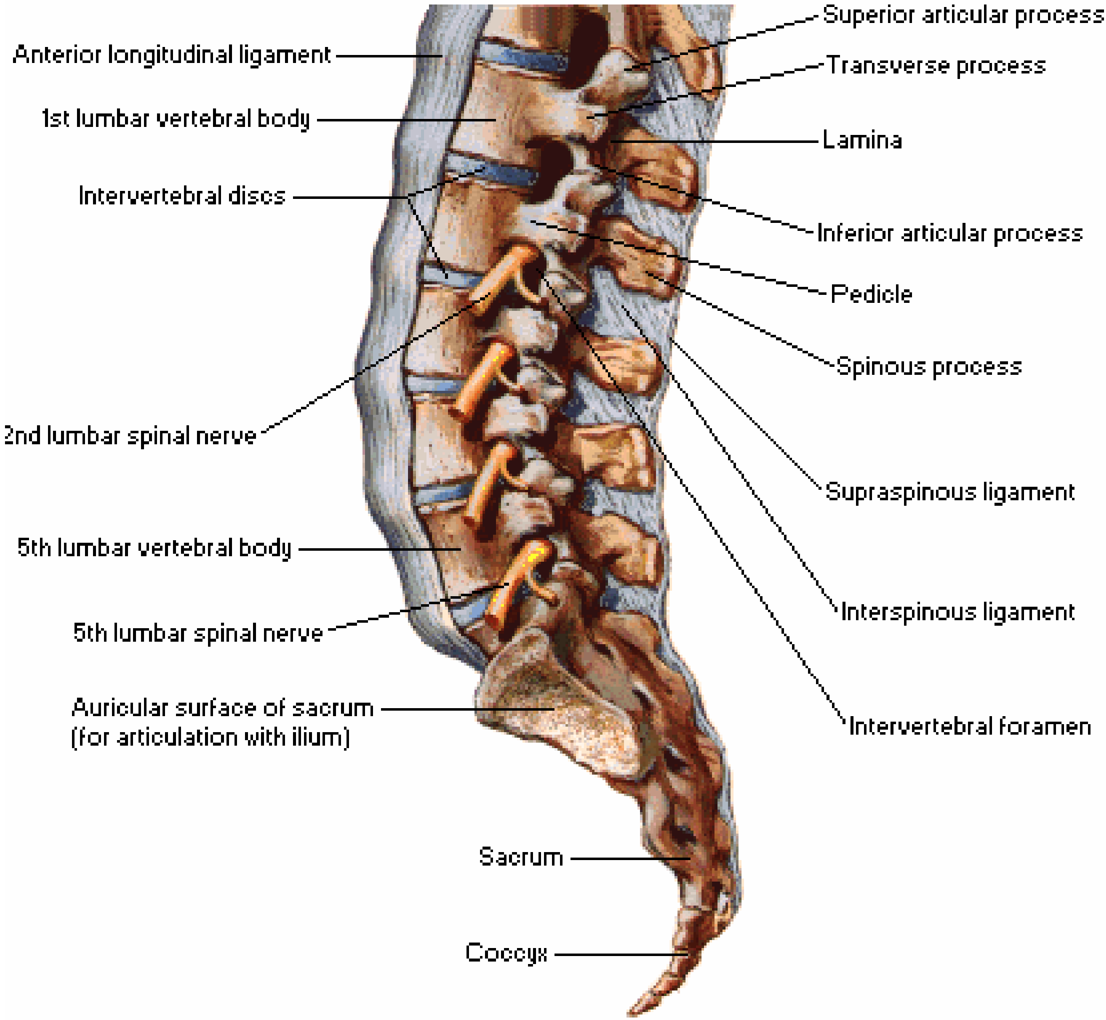
Anterior Vertebral Segments - Posterior View



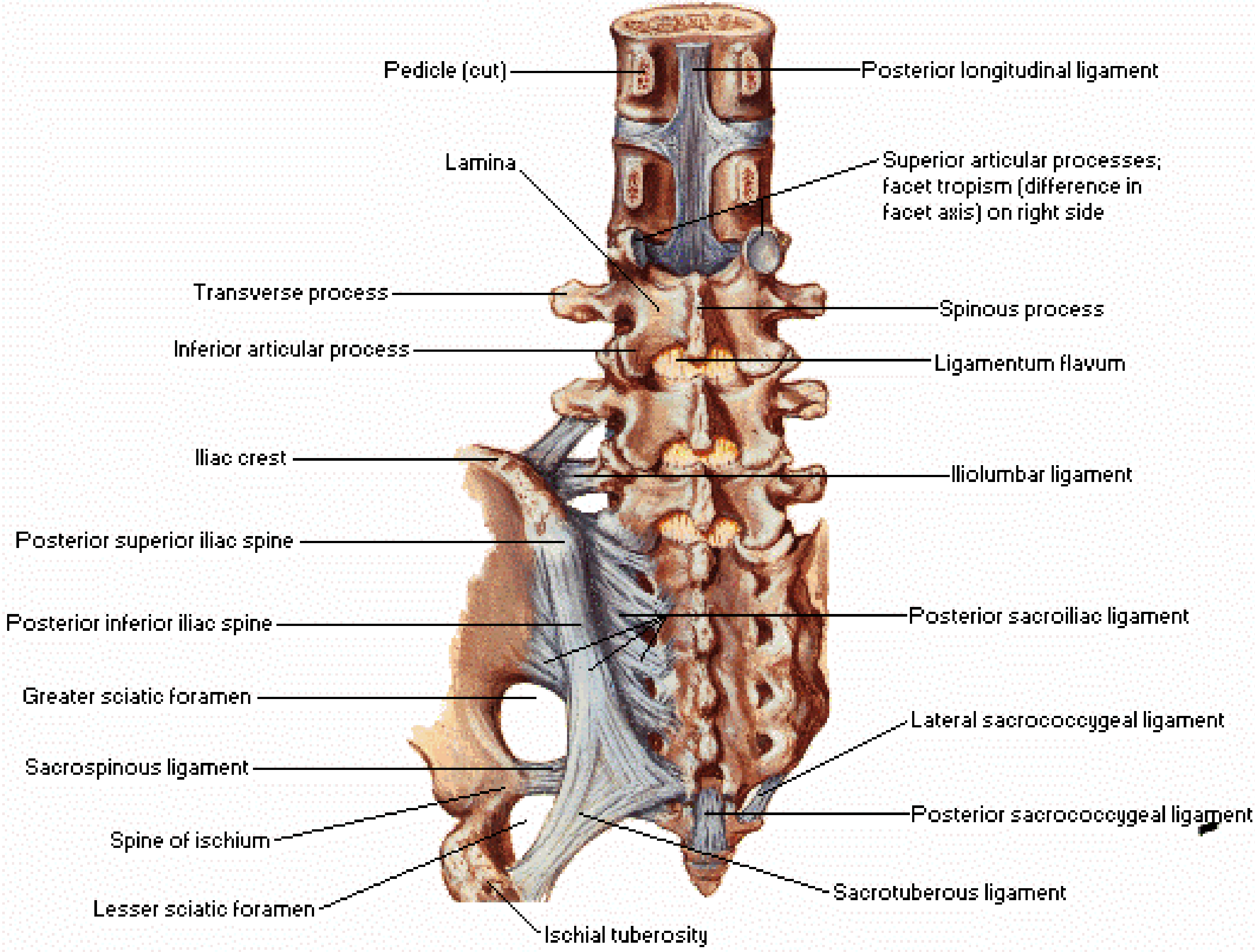
Posterior Vertebral Segments - Anterior View



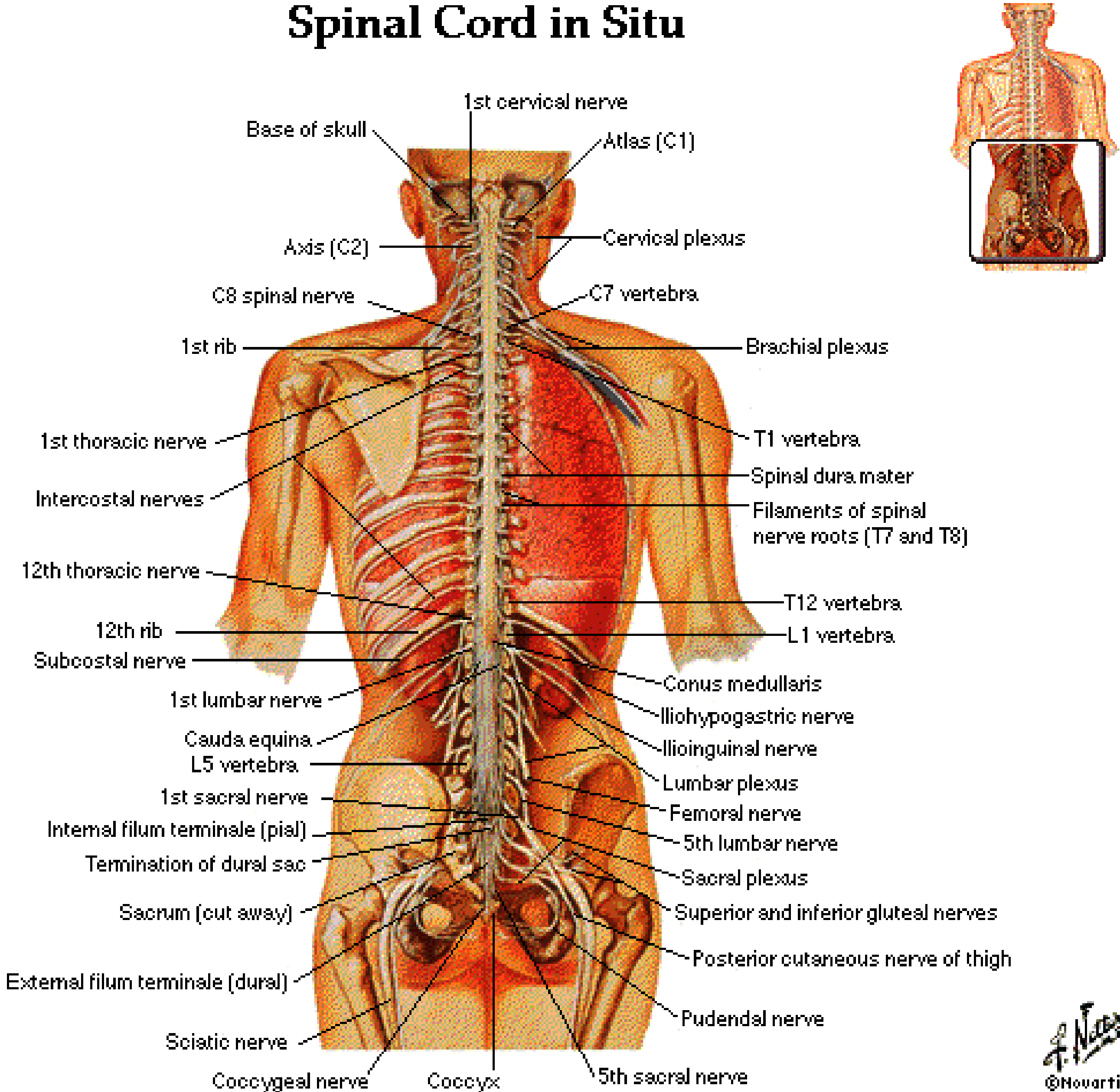
Left Lateral View

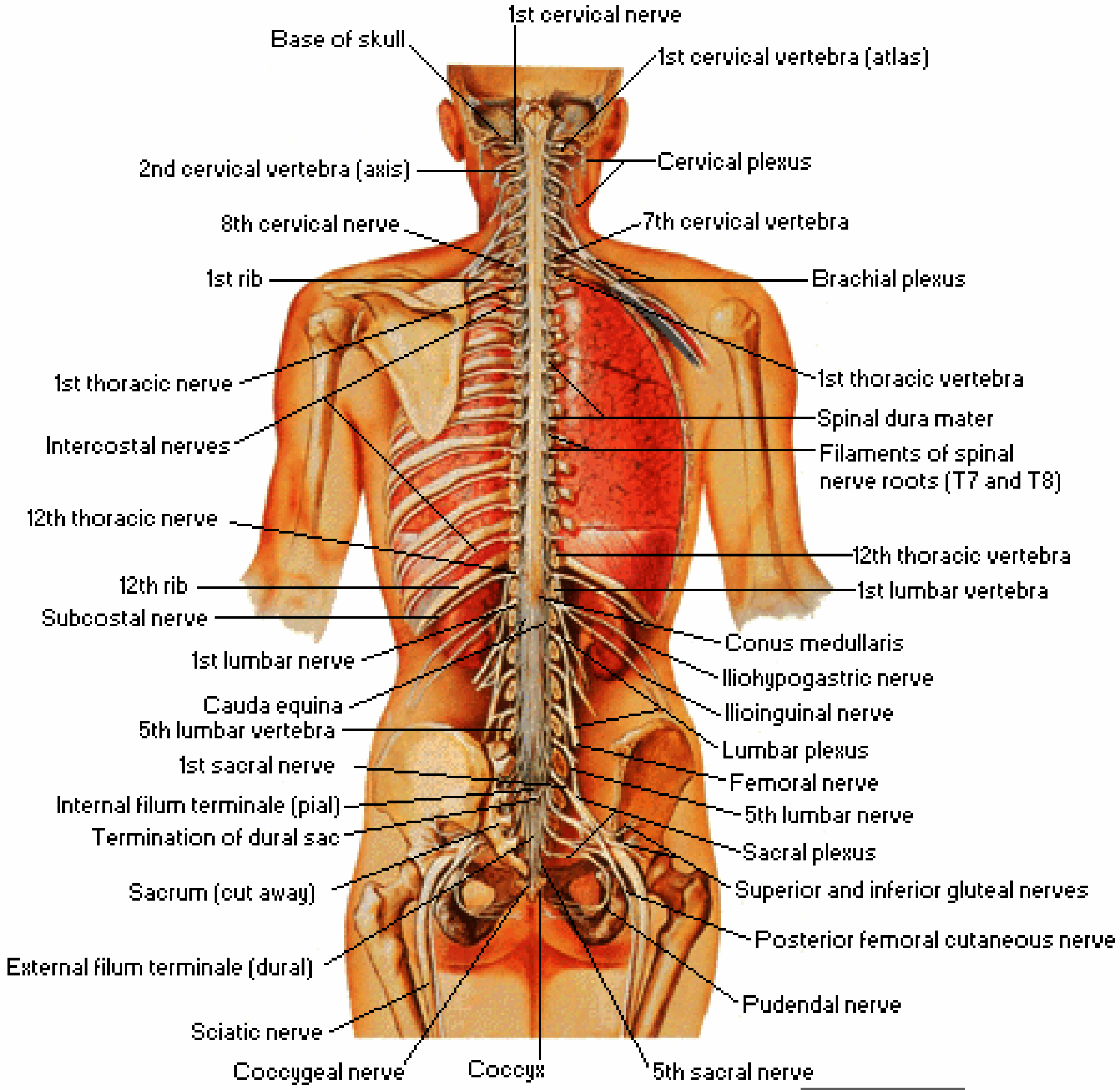


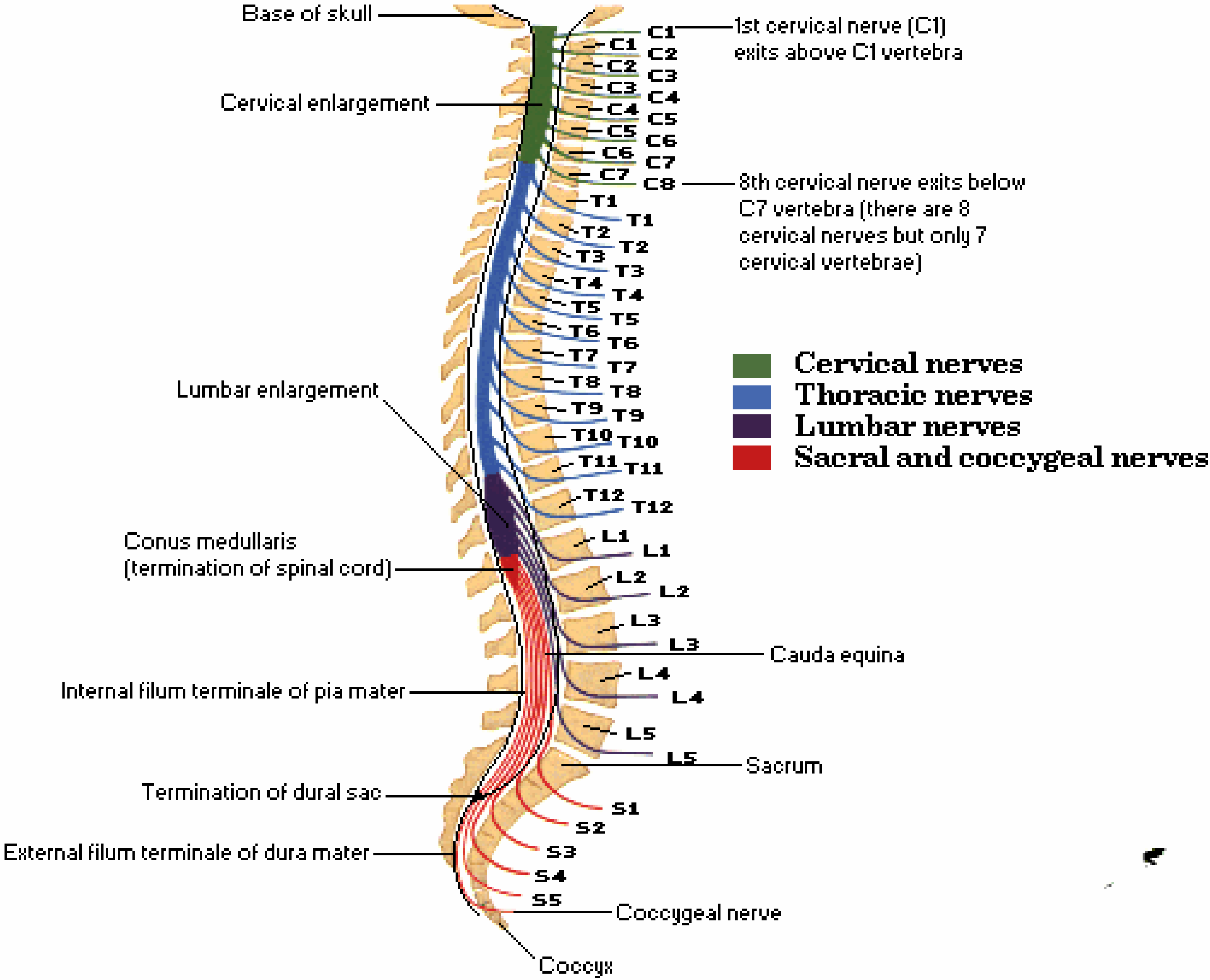
Posterior View



Spinal Cord in Situ

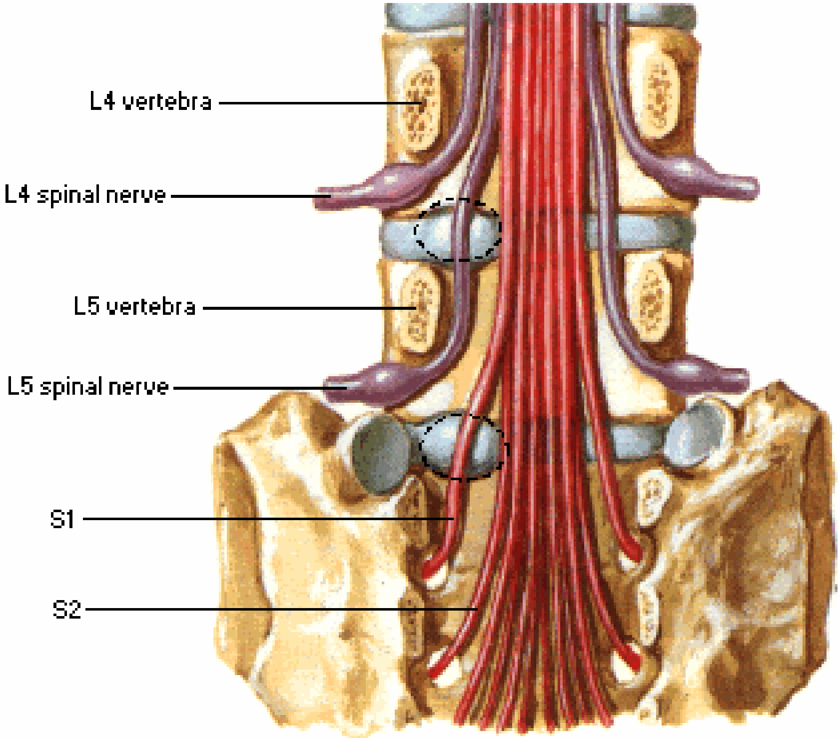



1st cervical nerve
Base of skull
1st cervical vertebra (atlas)
2nd cervical vertebra (axis)
Cervical plexus
8th cervical nerve
7th cervical vertebra
1st rib
Brachial plexus
1st thoracic nerve
1st thoracic vertebra
Spinal dura mater
Intercostal nerves
Filaments of spinal nerve roots (T7 and T8)
12th thoracic nerve
12th thoracic vertebra
12th rib
1st lumbar vertebra
Subcostal nerve
Conus medullaris
1st lumbar nerve
Iliohypogastric nerve
Cauda equina
Ilioinguinal nerve
5th lumbar vertebra
Lumbar plexus
1st sacral nerve
Femoral nerve
Internal filum terminale (pial)
5th lumbar nerve
Termination of dural sac
Sacral plexus
Sacrum (cut away)
Superior and inferior gluteal nerves
Posterior femoral cutaneous nerve
External filum terminale (dural)
Pudendal nerve
Sciatic nerve
Coccygeal nerve
Coccyx
5th sacral nerve



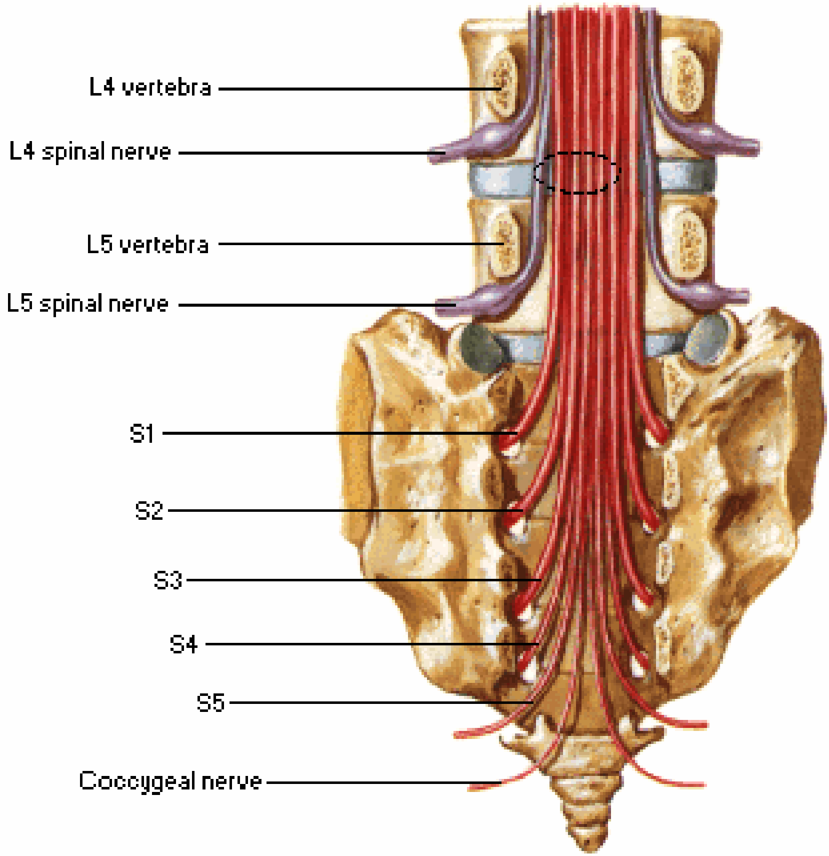
Base of skull
1st cervical nerve (C1) exits above C1 vertebra
Cervical enlargement
C1
C2
C3
C4
C5
C6
C7
C8
8th cervical nerve exits below C7 vertebra (there are 8 cervical nerves but only 7 cervical vertebrae)
T1
T2
T3
T4
T5
T6
T7
T8
T9
T10
T11
T12
Cervical nerves
Thoracic nerves
Lumbar nerves
Sacral and coccygeal nerves
Lumbar enlargement
Conus medullaris (termination of spinal cord)
L1
L2
L3
L4
L5
Cauda equina
Internal filum terminale of pia mater
Sacrum
Termination of dural sac
S1
S2
S3
S4
S5
External filum terminale of dura mater
Coccygeal nerve
Coccyx

Lateral Protrusion



Lumbar disc protrusion does not usually affect nerve exiting above disc. Lateral protrusion at disc level L4- 5 affects 5th lumbar nerve, not 4th lumbar nerve. Protrusion at disc level L5- S1 affects 1st sacral nerve, not 5th lumbar nerve

Medial Protrusion



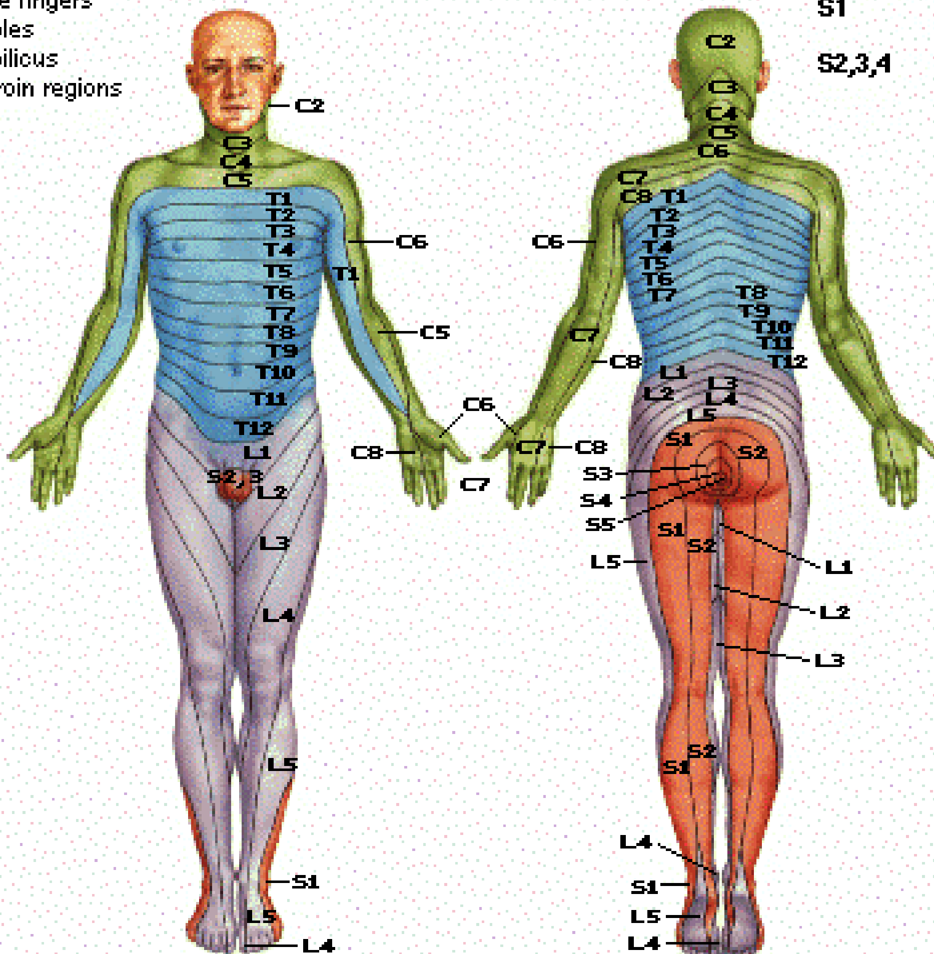
Medial protrusion at disc level L4-5 rarely affects 4th lumbar nerve but may affect 5th lumbar nerve and sometimes 1st-4th sacral nerves

Levels of principal dermatomes

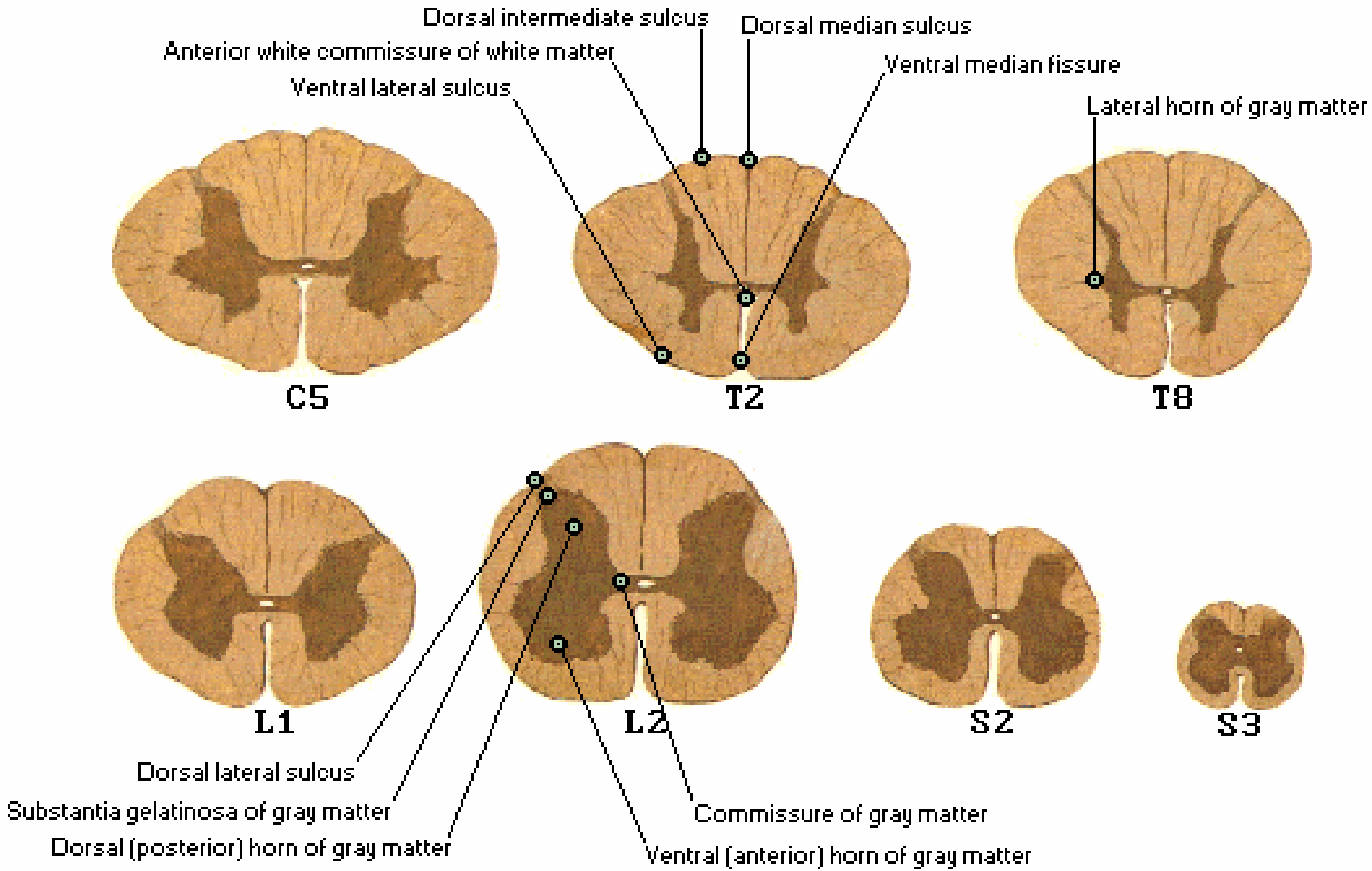
C5	Clavicles
C5,6,7	Lateral parts of upper limbs
C8,T1	Medial sides of upper limbs
C6	Thumb
C6,7,8	Hand
C8	Ring and little fingers
T4	Level of nipples
T10	Level of umbilicus
T12	Inguinal or groin regions

Levels of principal dermatomes

L1,2,3,4	Anterior and inner surfaces of lower limbs
L4,5,S1	Foot
L4	Medial side of great toe
S1,2,L5	Posterior and outer sufaces of lower limbs
S1	Lateral margin of foot and little toe
S2,3,4	Perineum

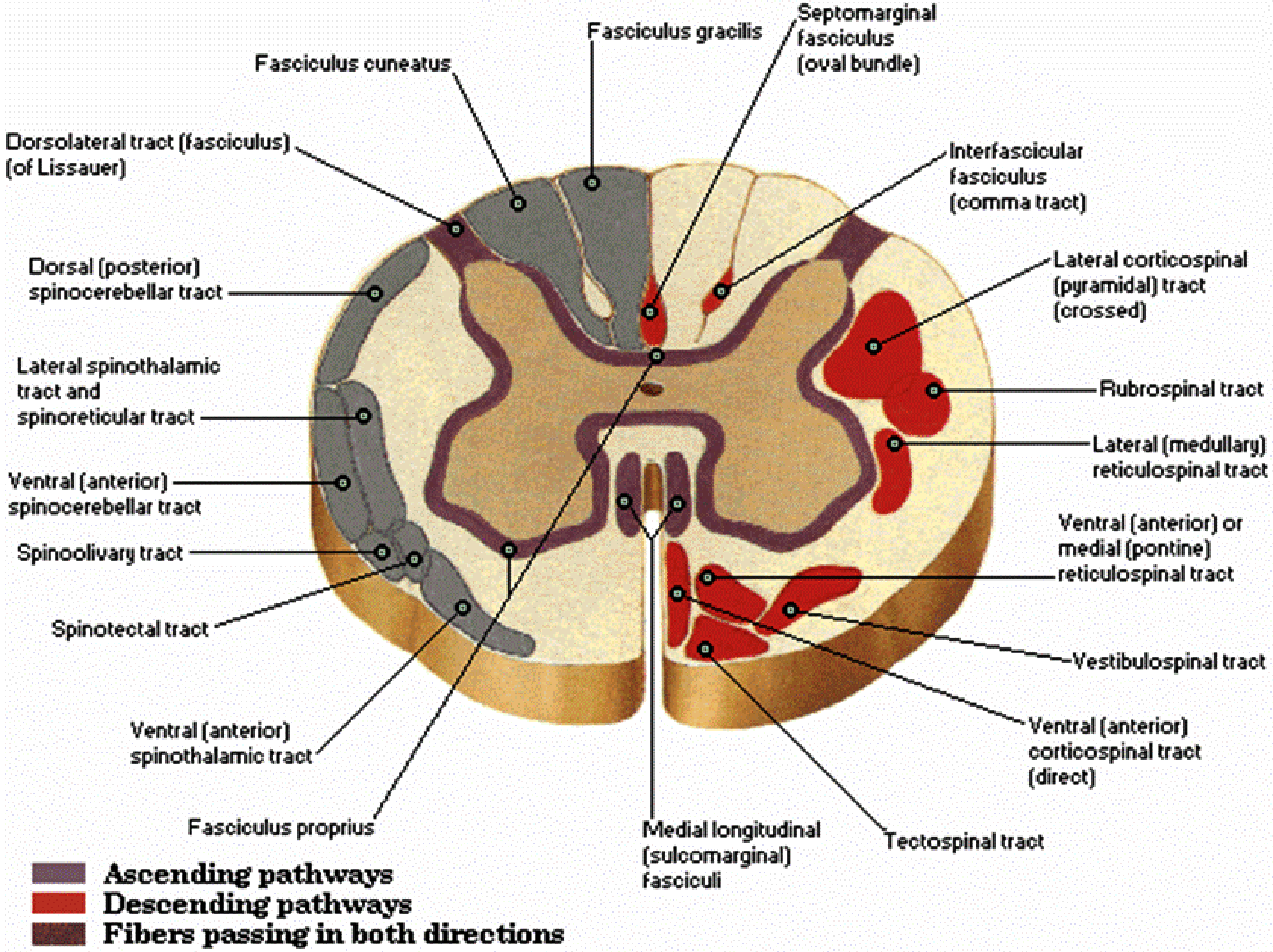


Schematic demarcation of dermatomes shown as distinct segments. There is actually considerable overlap between any two adjacent dermatomes



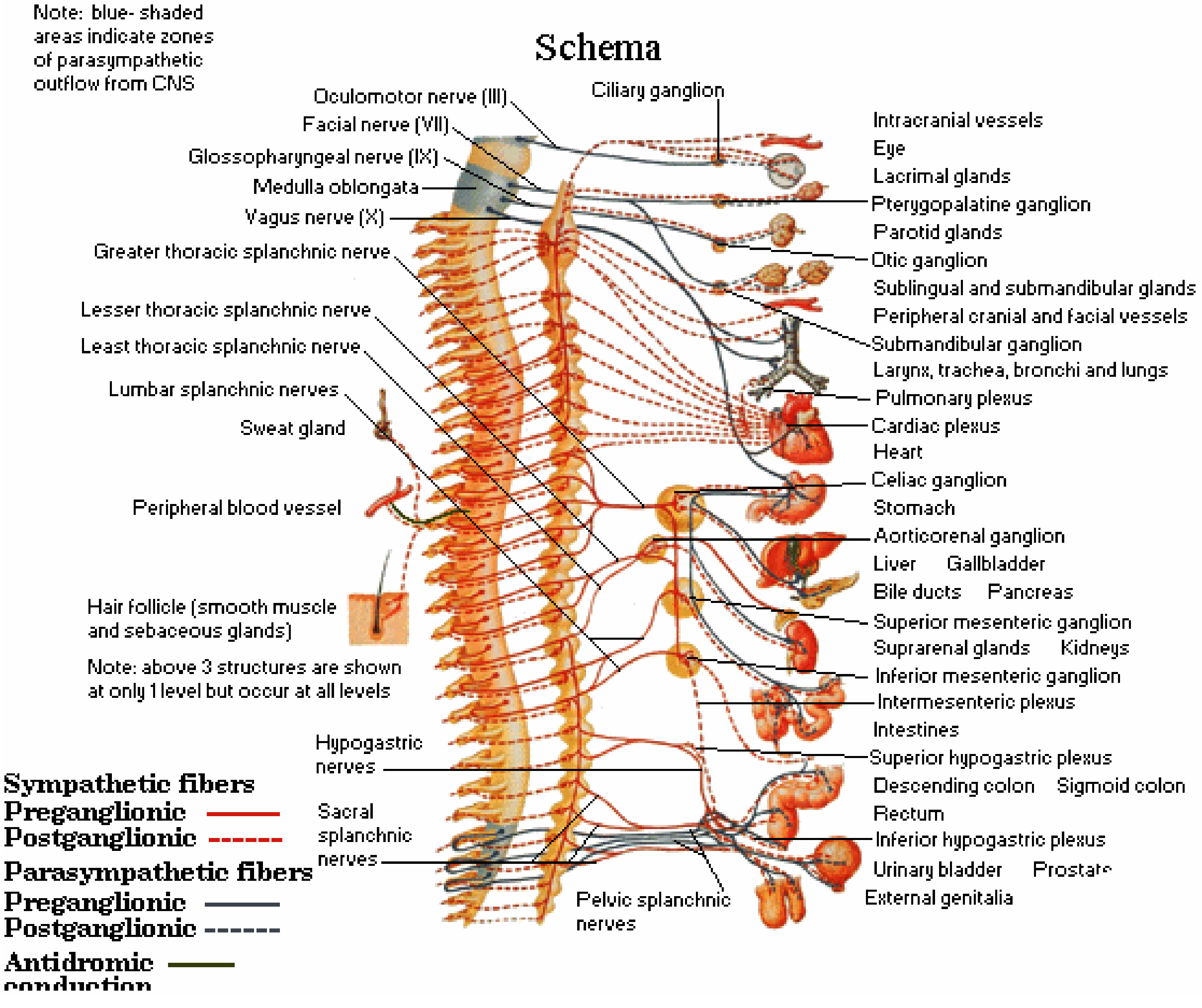
Sections through spinal cord at various levels

Fiber Tracts

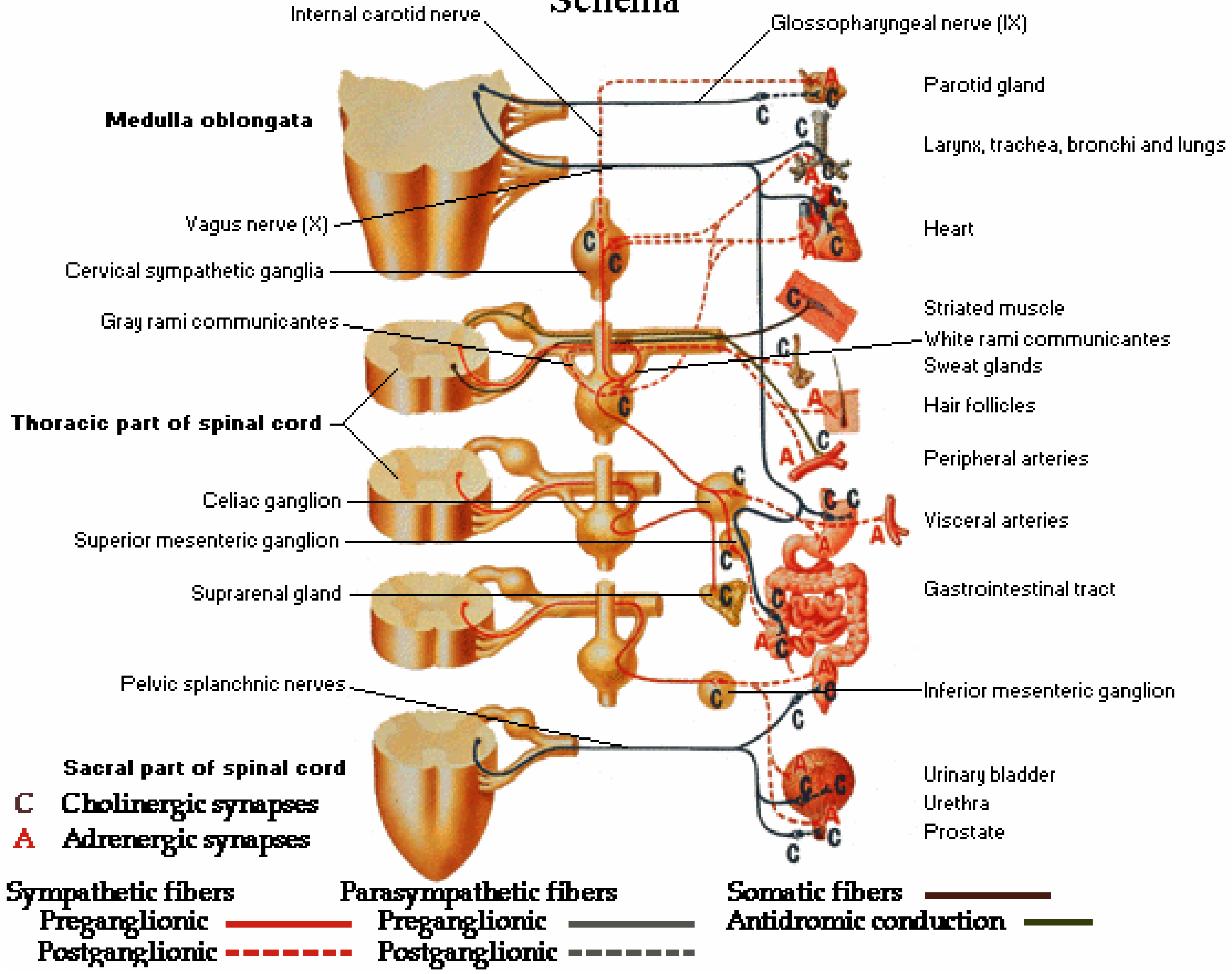


General Topography

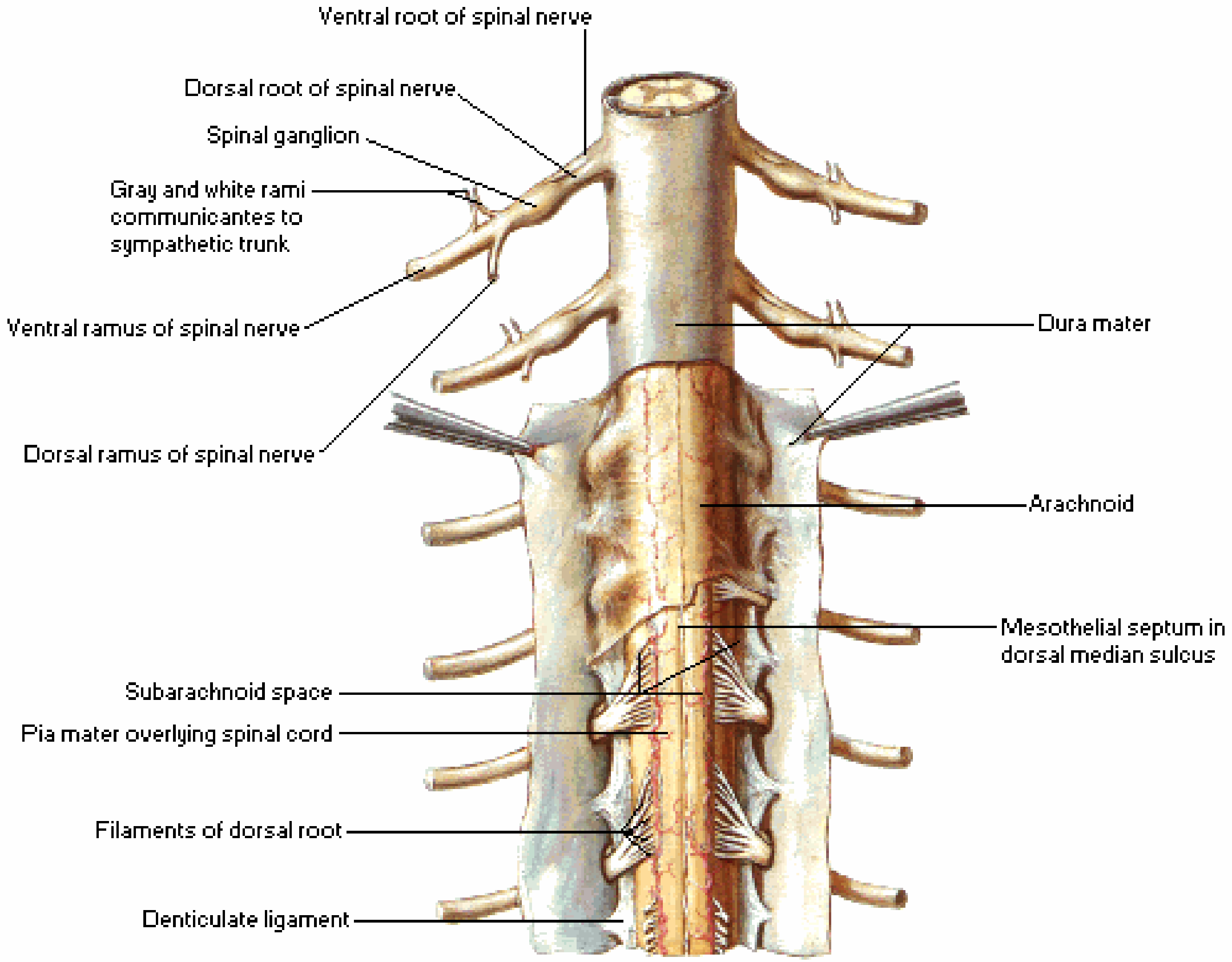



Note: blue- shaded areas indicate zones of parasympathetic outflow from CNS
Schema
Oculomotor nerve (III)
Ciliary ganglion
Facial nerve (VII)
Glossopharyngeal nerve (IX)
Medulla oblongata
Vagus nerve (X)
Greater thoracic splanchnic nerve
Lesser thoracic splanchnic nerve
Least thoracic splanchnic nerve
Lumbar splanchnic nerves
Sweat gland
Peripheral blood vessel
Hair follicle (smooth muscle and sebaceous glands)
Note: above 3 structures are shown at only 1 level but occur at all levels
Hypogastric nerves
Sacral splanchnic nerves
Pelvic splanchnic nerves
Intracranial vessels
Eye
Lacrimal glands
Pterygopalatine ganglion
Parotid glands
Otic ganglion
Sublingual and submandibular glands
Peripheral cranial and facial vessels
Submandibular ganglion
Larynx, trachea, bronchi and lungs
Pulmonary plexus
Cardiac plexus
Heart
Celiac ganglion
Stomach
Aorticorenal ganglion
Liver
Gallbladder
Bile ducts
Pancreas
Superior mesenteric ganglion
Suprarenal glands
Kidneys
Inferior mesenteric ganglion
Intermesenteric plexus
Intestines
Superior hypogastric plexus
Descending colon
Sigmoid colon
Rectum
Inferior hypogastric plexus
Urinary bladder
Prostate
External genitalia
Sympathetic fibers
Preganglionic
Postganglionic
Parasympathetic fibers
Preganglionic
Postganglionic
Antidromic conduction

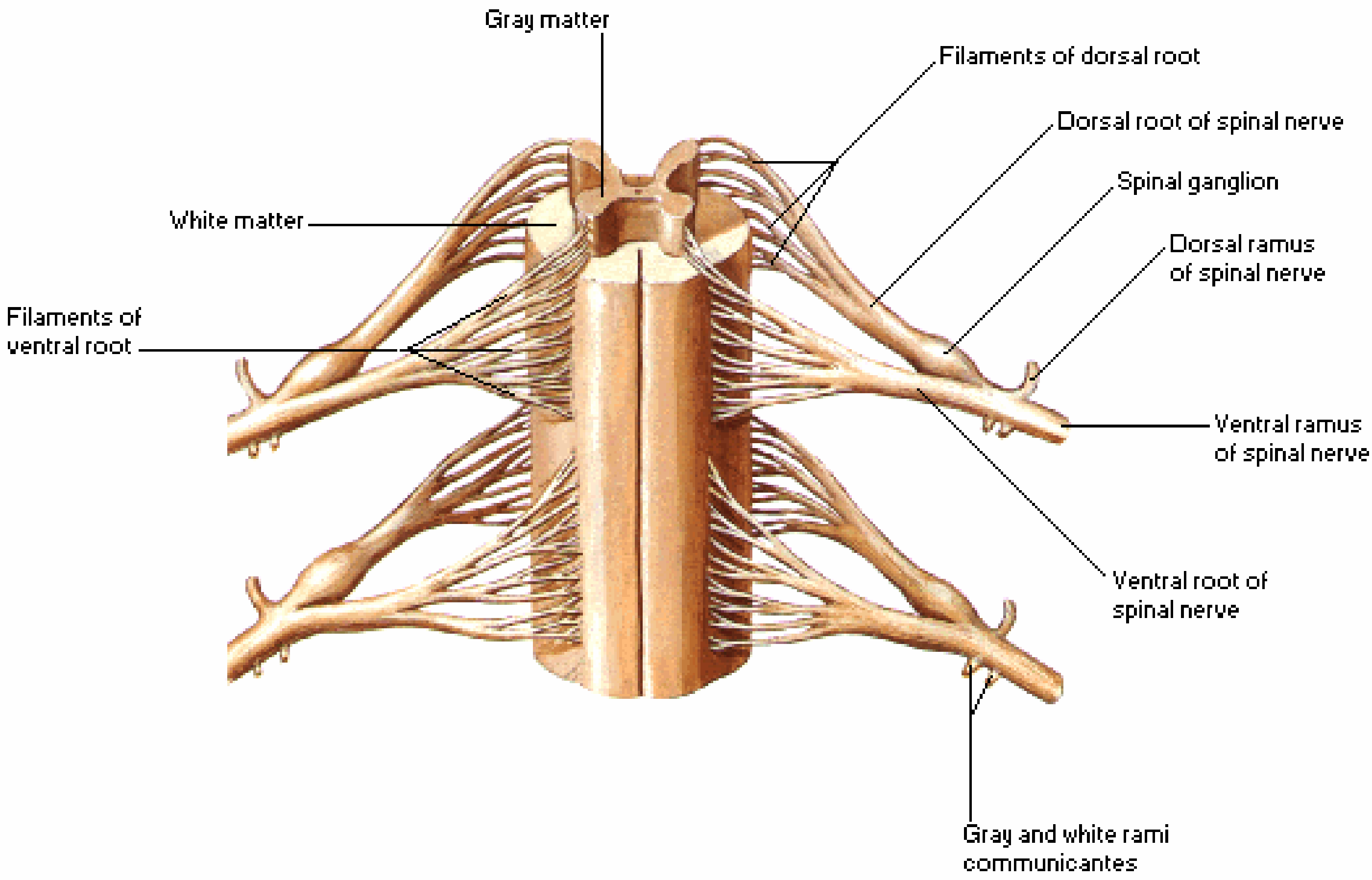
Schema


Internal carotid nerve
Glossopharyngeal nerve (IX)
Parotid gland
Medulla oblongata
Larynx, trachea, bronchi and lungs
Vagus nerve (X)
Heart
Cervical sympathetic ganglia
Striated muscle
Gray rami communicantes
White rami communicantes
Sweat glands
Hair follicles
Thoracic part of spinal cord
Peripheral arteries
Celiac ganglion
Visceral arteries
Superior mesenteric ganglion
Gastrointestinal tract
Suprarenal gland
Pelvic splanchnic nerves
Inferior mesenteric ganglion
Urinary bladder
Urethra
Prostate
Sacral part of spinal cord
C Cholinergic synapses
A Adrenergic synapses
Sympathetic fibers
Preganglionic
Postganglionic
Parasympathetic fibers
Preganglionic
Postganglionic
Somatic fibers
Antidromic conduction

Posterior View

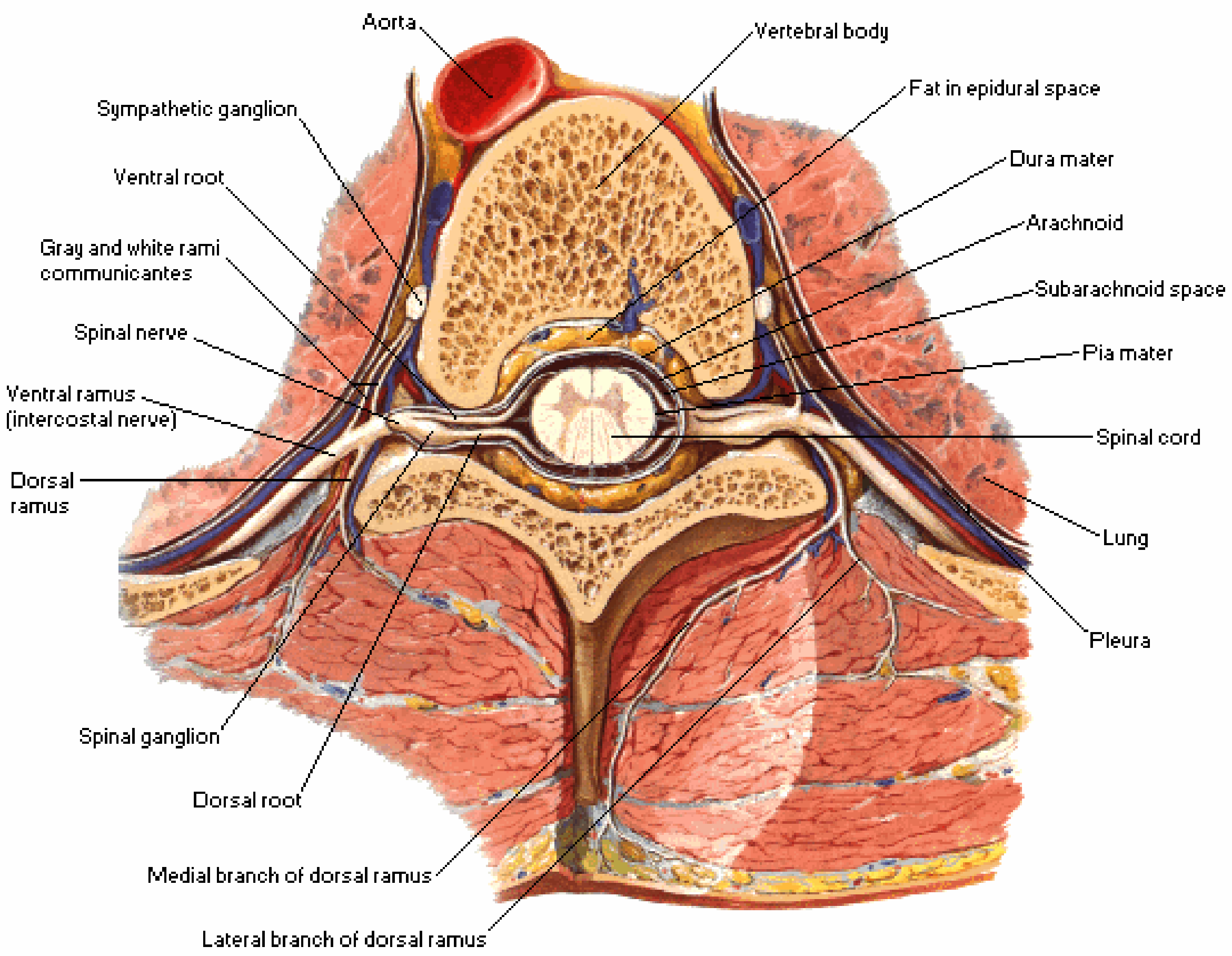


Anterior View

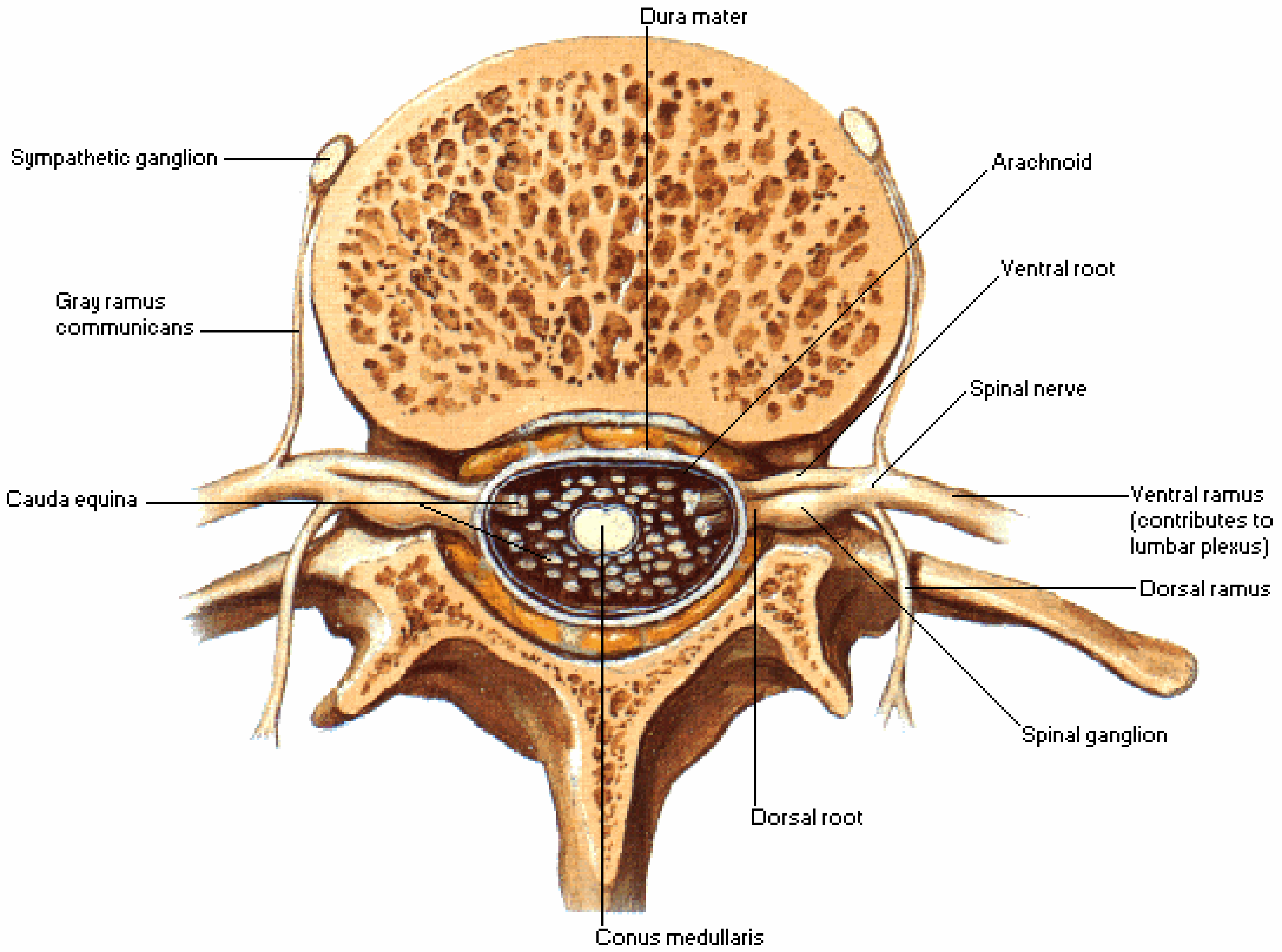


Membranes removed (greatly magnified)

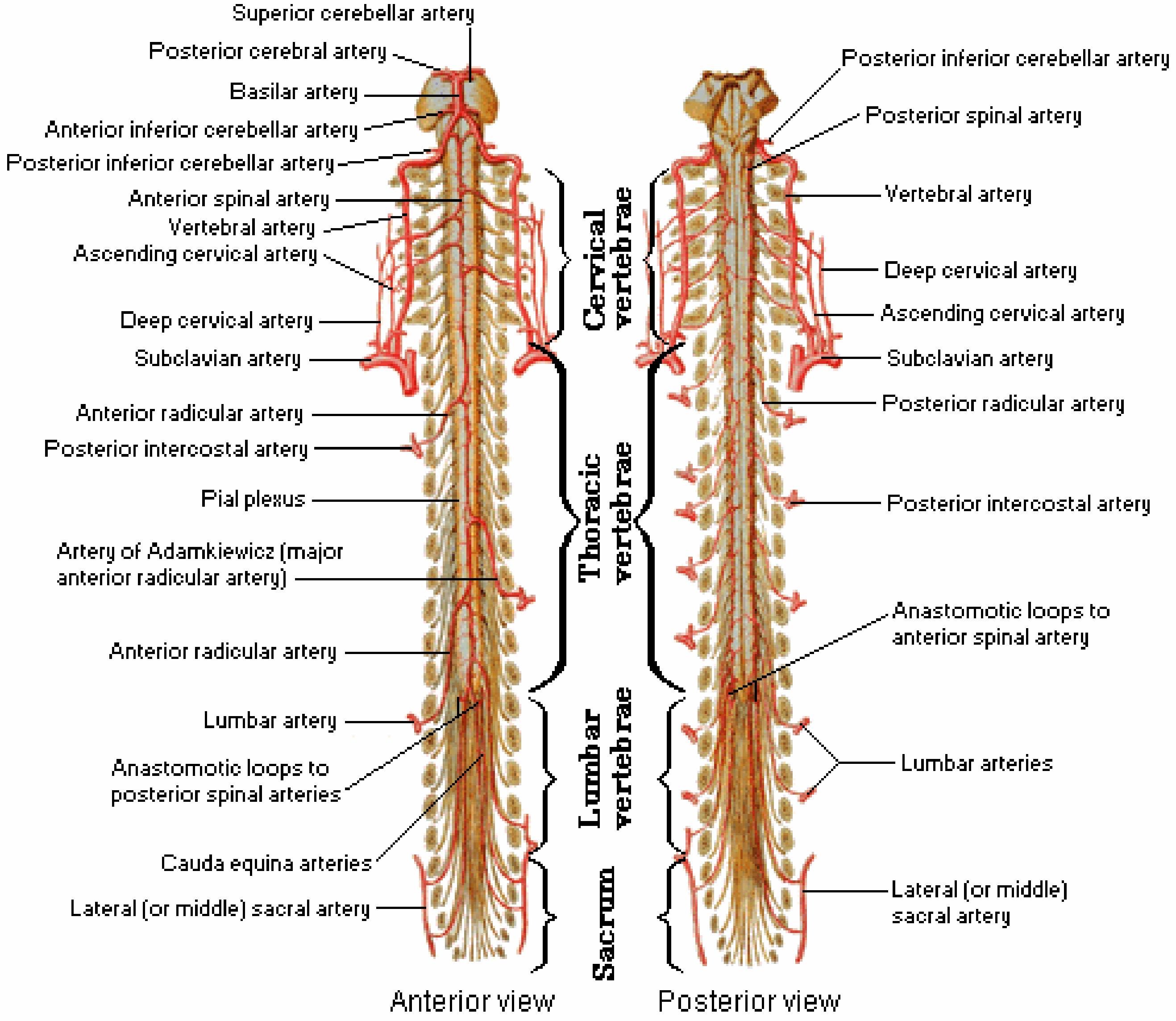
Section through Thoracic Vertebra



Section through Lumbar Vertebra

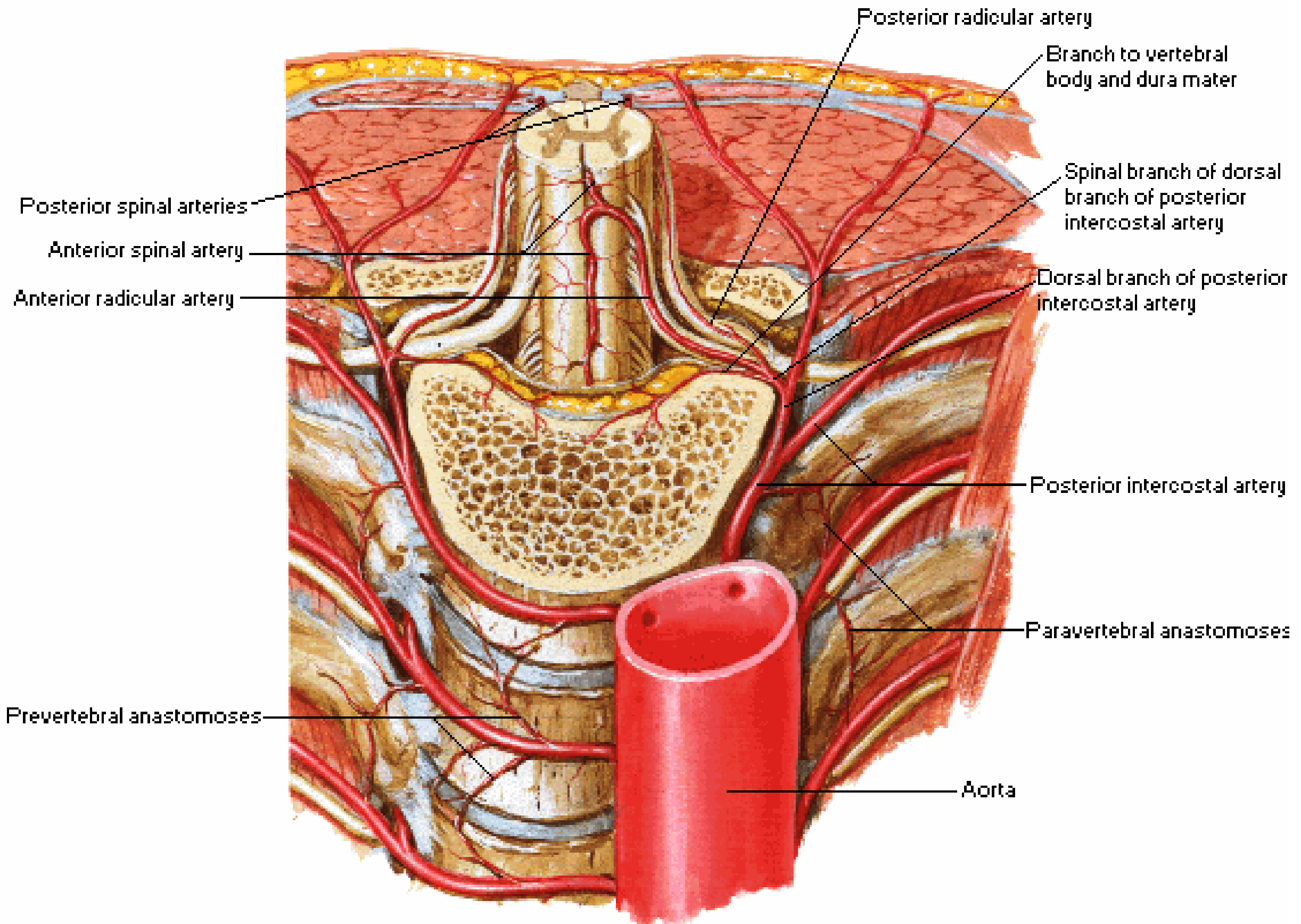


Schema

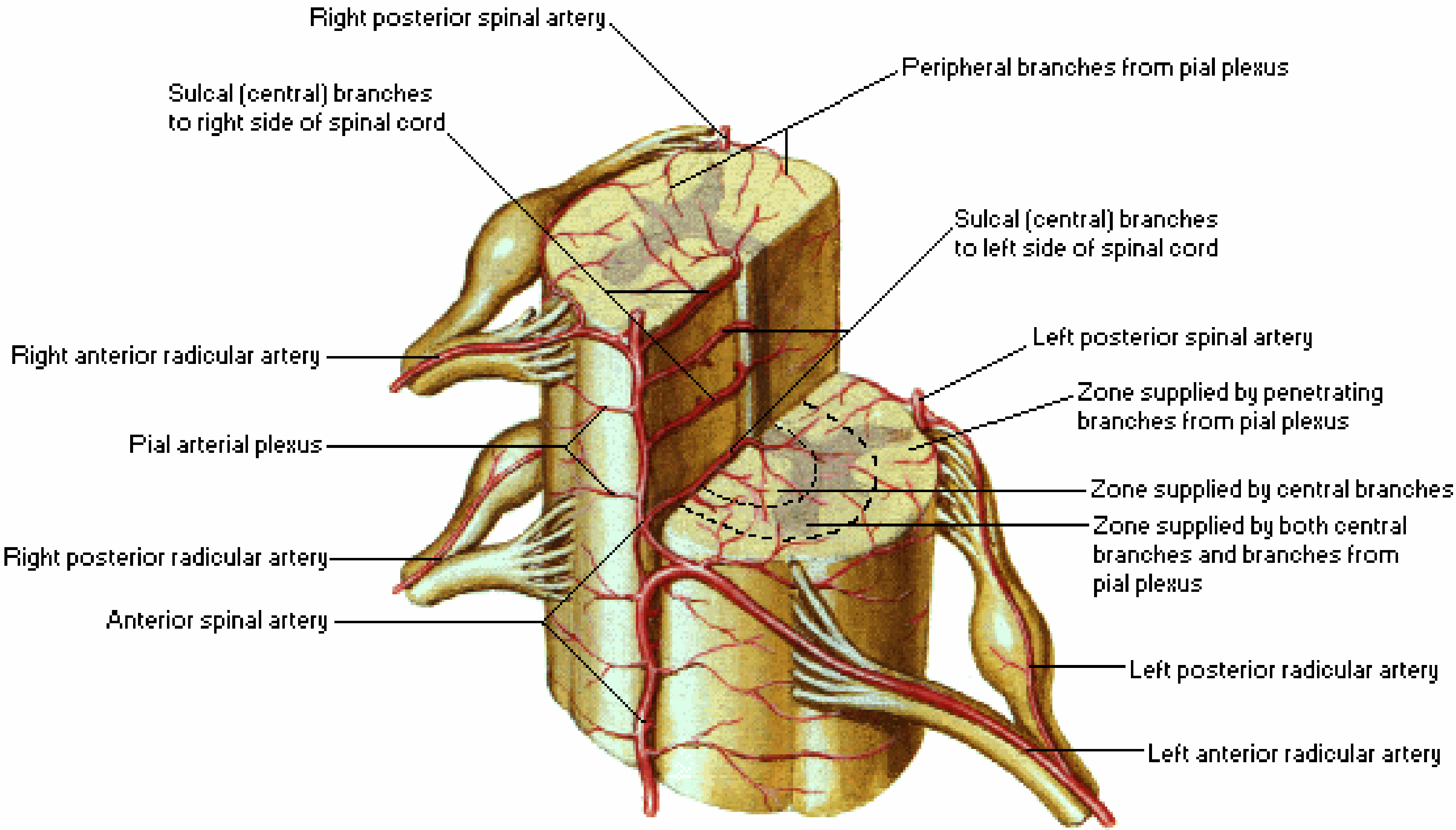


Superior cerebellar artery
Posterior cerebral artery
Basilar artery
Anterior inferior cerebellar artery
Posterior inferior cerebellar artery
Anterior spinal artery
Vertebral artery
Ascending cervical artery
Deep cervical artery
Subclavian artery
Anterior radicular artery
Posterior intercostal artery
Pial plexus
Artery of Adamkiewicz (major anterior radicular artery)
Anterior radicular artery
Lumbar artery
Anastomotic loops to posterior spinal arteries
Cauda equina arteries
Lateral (or middle) sacral artery
Cervical vertebrae
Thoracic vertebrae
Lumbar vertebrae
Sacrum
Posterior inferior cerebellar artery
Posterior spinal artery
Vertebral artery
Deep cervical artery
Ascending cervical artery
Subclavian artery
Posterior radicular artery
Posterior intercostal artery
Anastomotic loops to anterior spinal artery
Lumbar arteries
Lateral (or middle) sacral artery
Anterior view
Posterior view

Thoracic Section

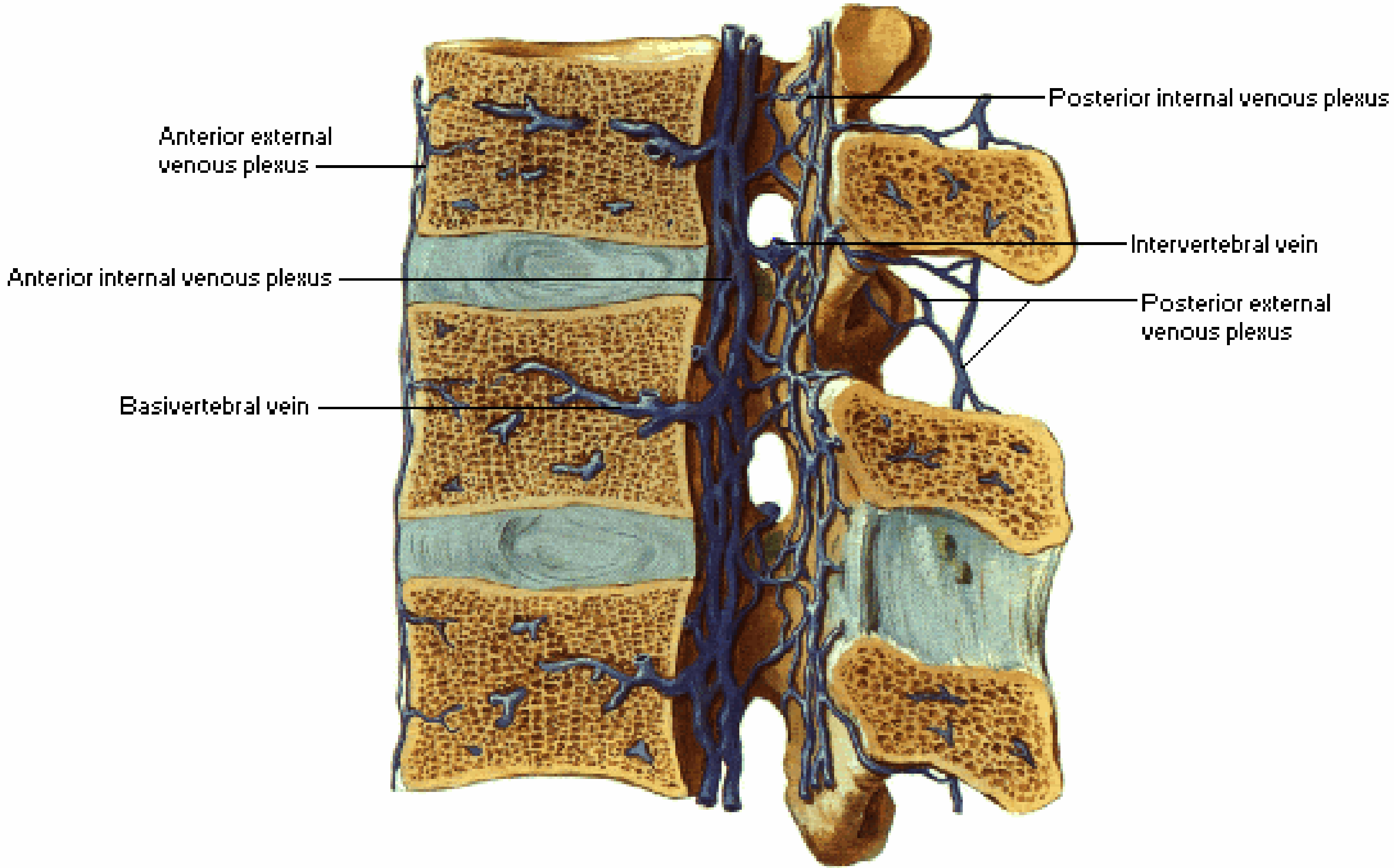


Schema

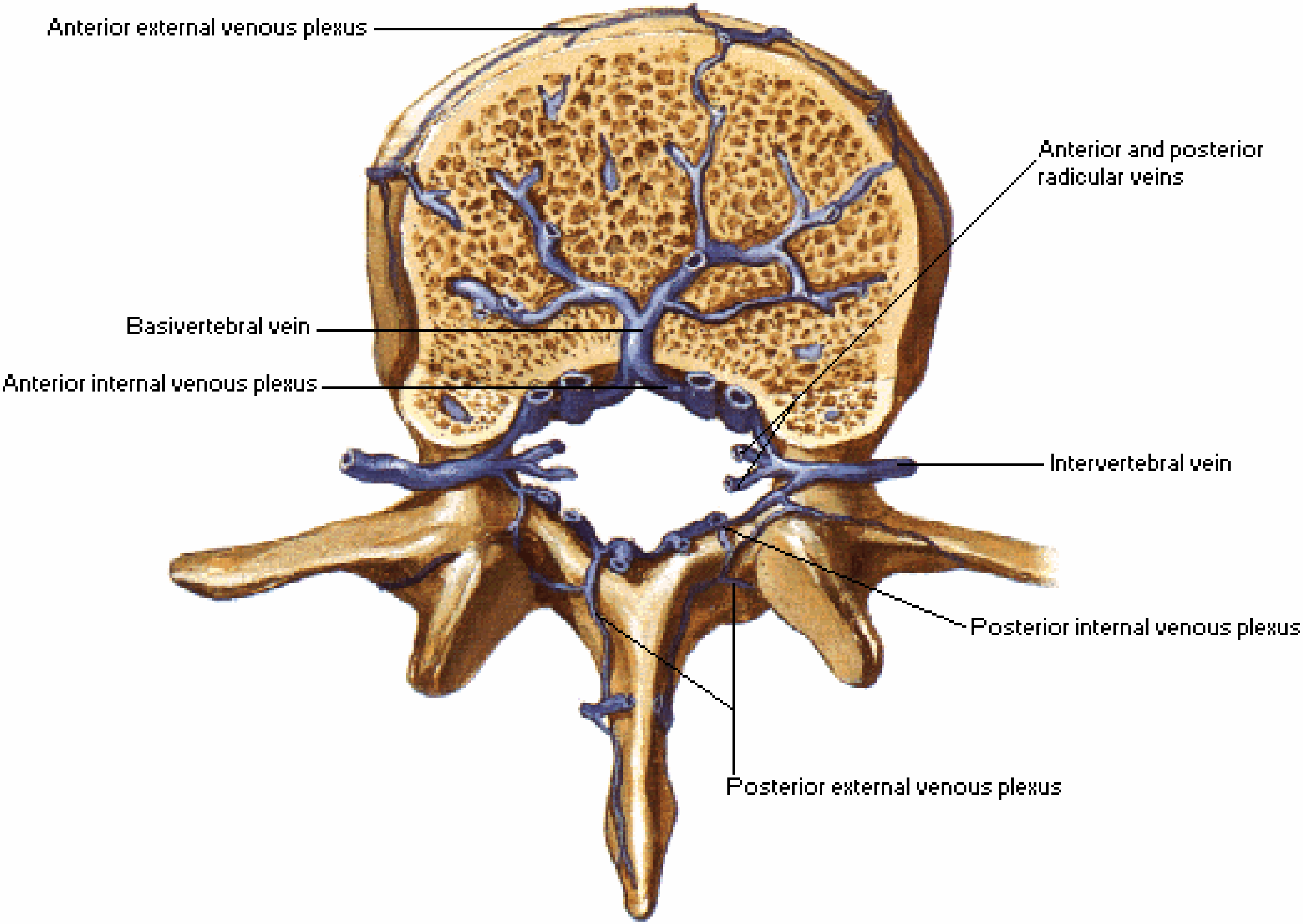


Right posterior spinal artery
Peripheral branches from pial plexus
Sulcal (central) branches to right side of spinal cord
Sulcal (central) branches to left side of spinal cord
Left posterior spinal artery
Right anterior radicular artery
Zone supplied by penetrating branches from pial plexus
Pial arterial plexus
Zone supplied by central branches
Zone supplied by both central branches and branches from pial plexus
Right posterior radicular artery
Anterior spinal artery
Left posterior radicular artery
Left anterior radicular artery

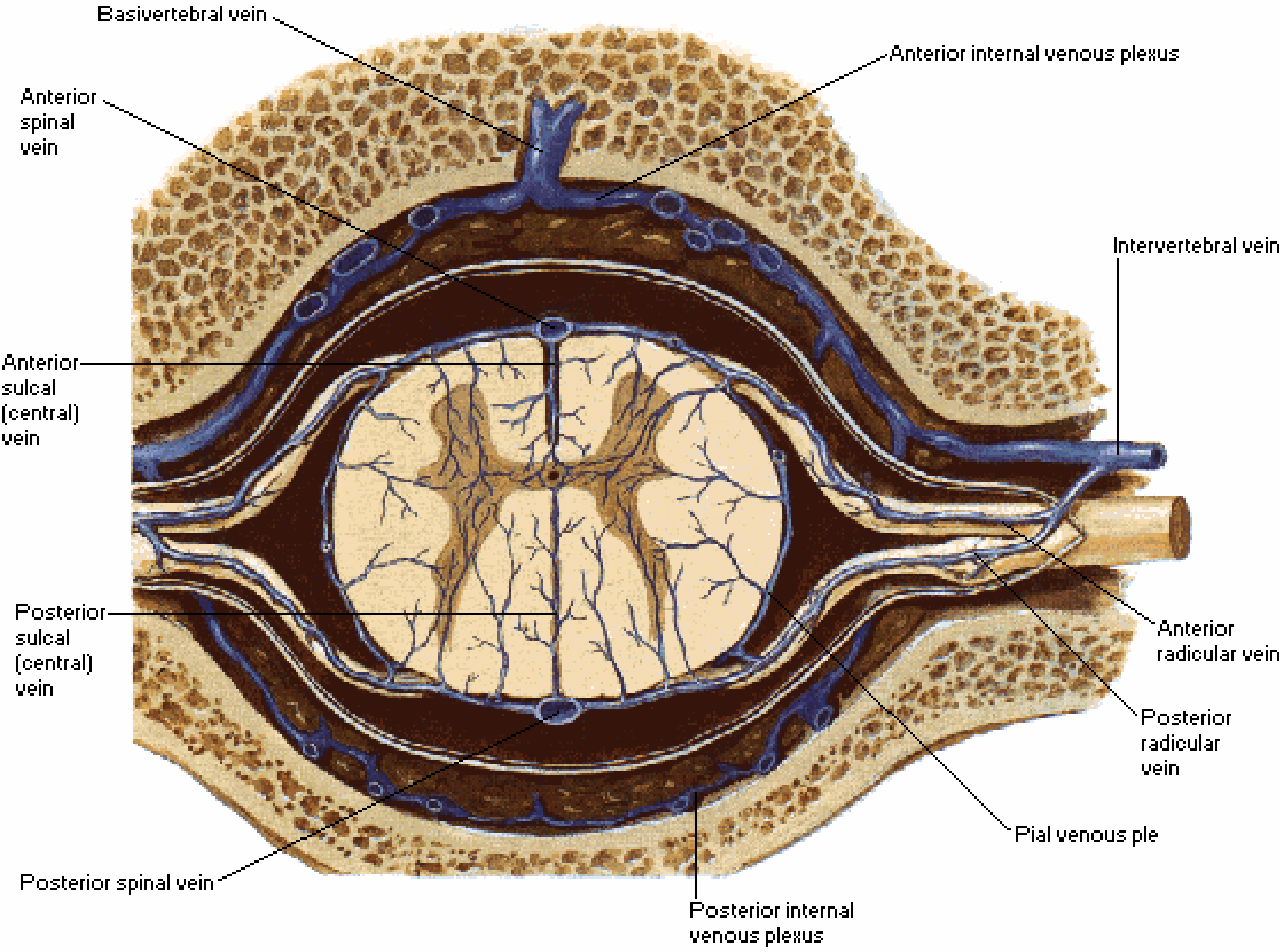
Sagittal Section [without Cord]



Superior View [without Cord]

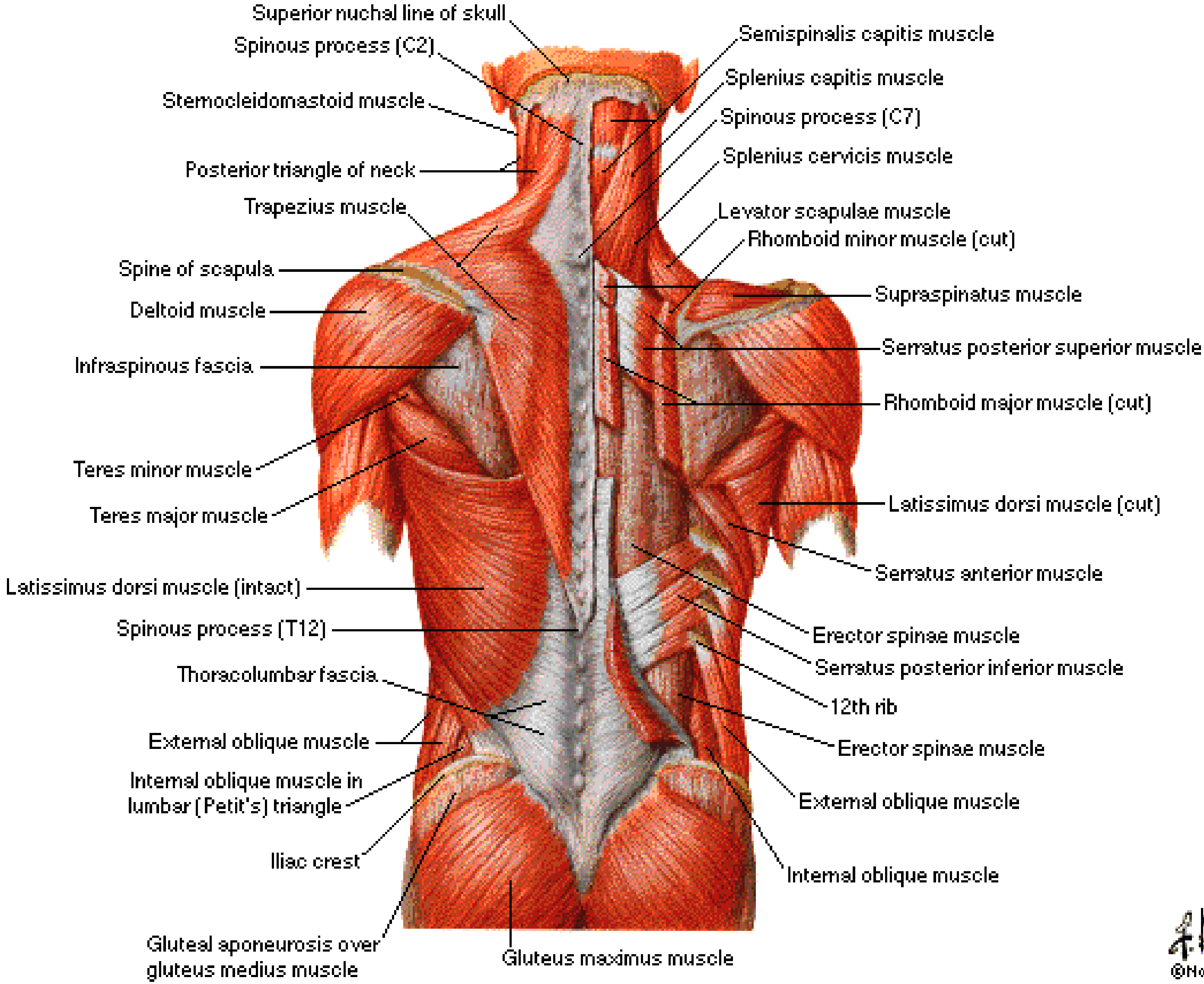


Superior View [Magnified with Cord]

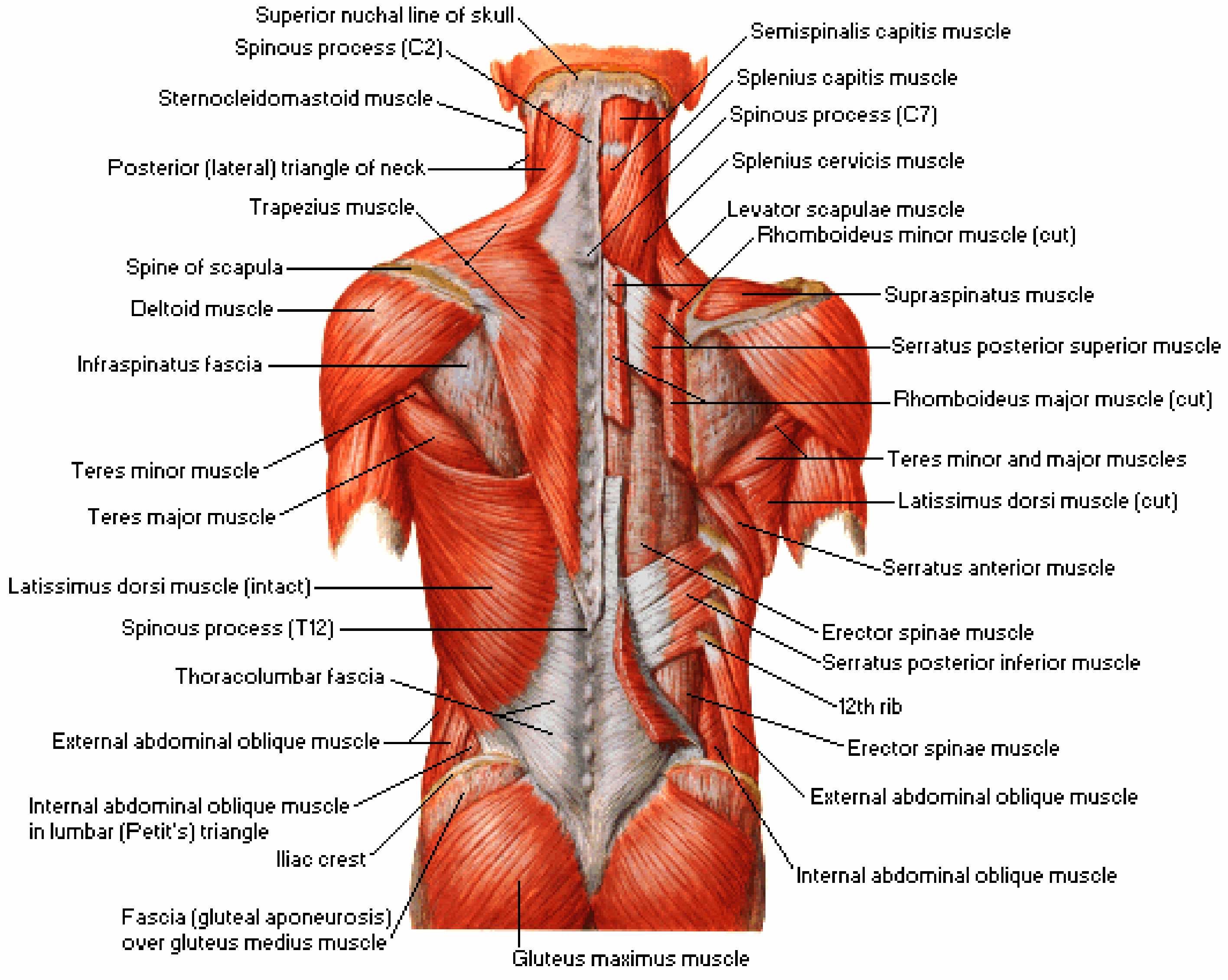


Muscles of Back

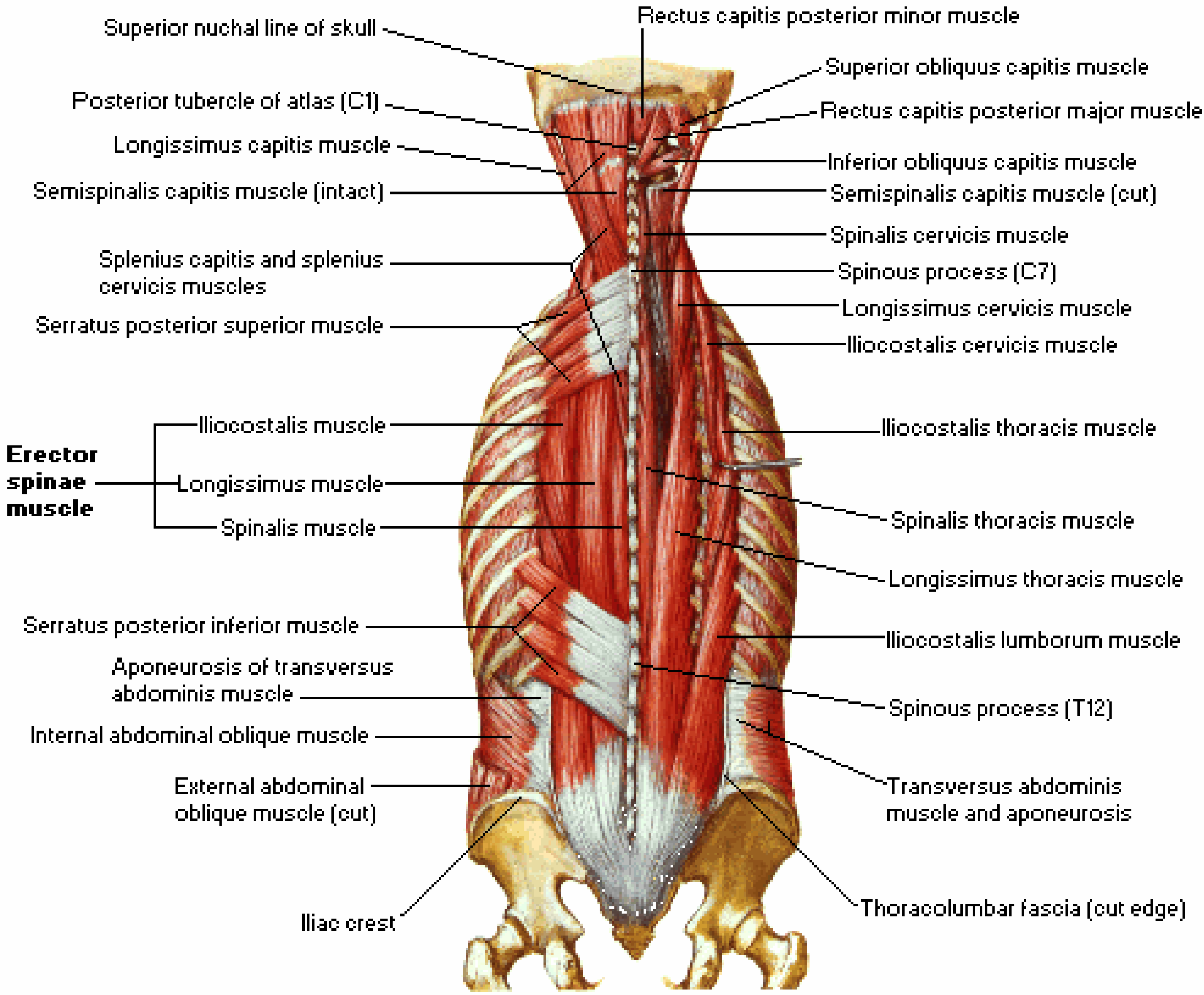
Superficial Layers



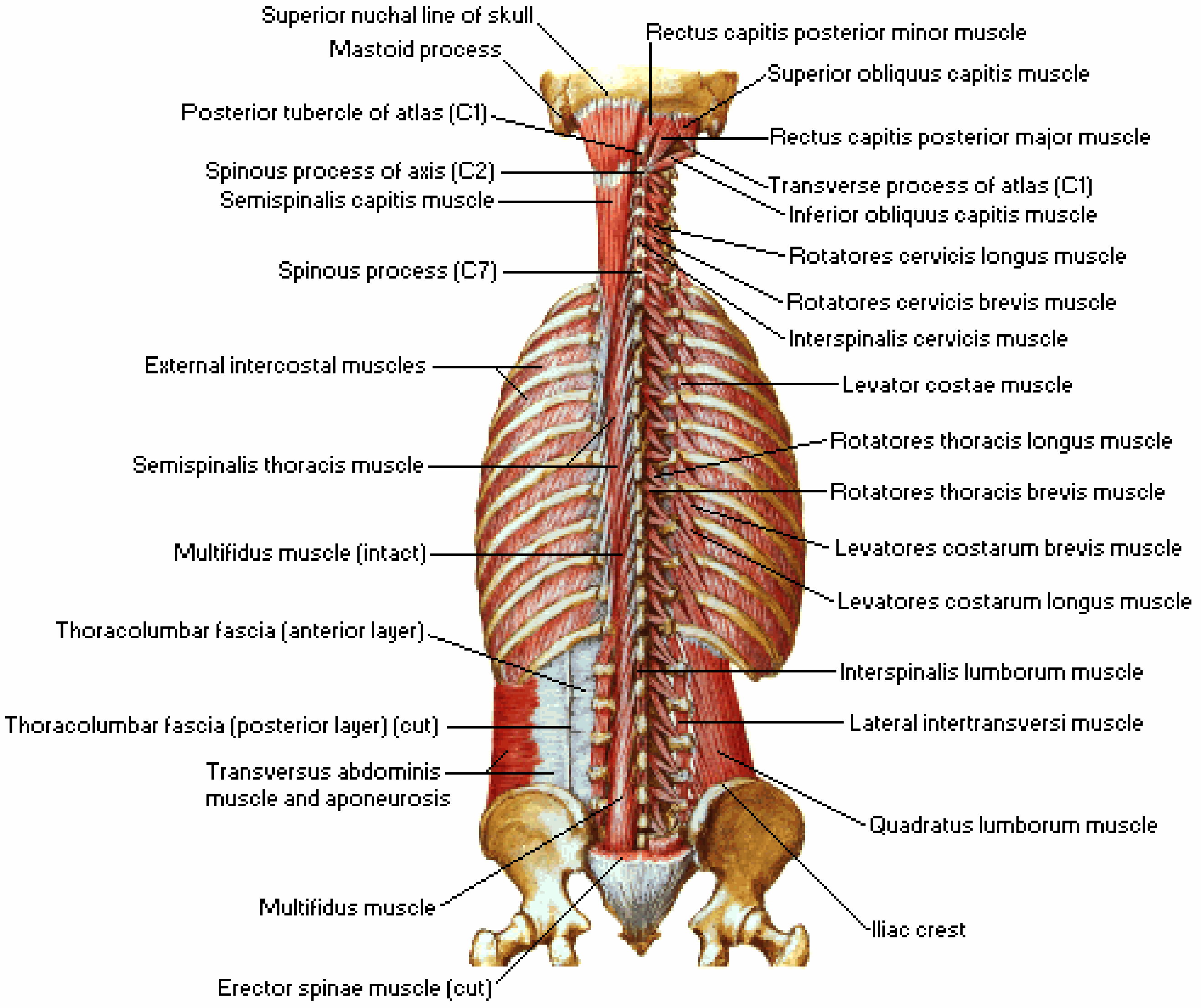
Superficial Layers

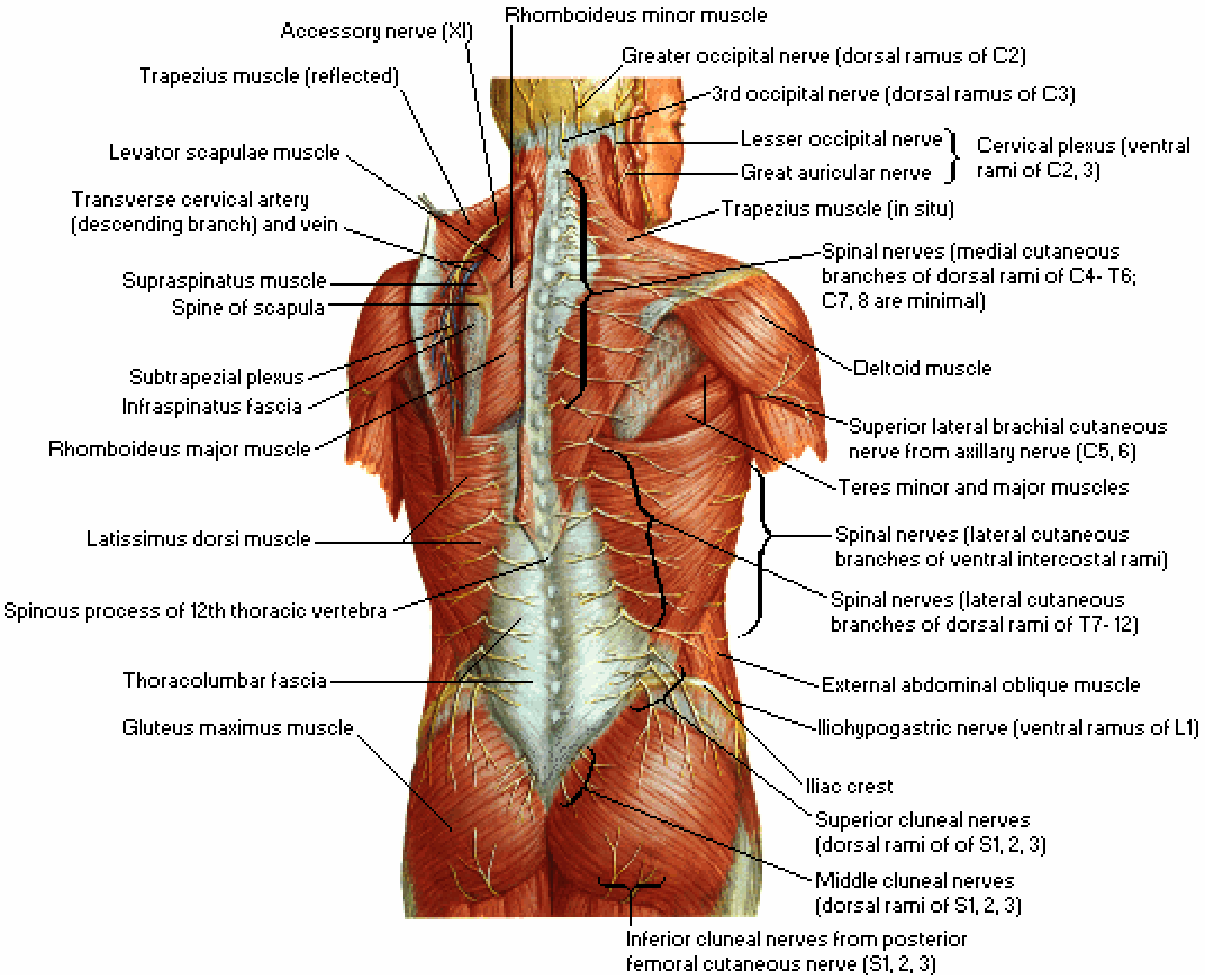


Intermediate Layers

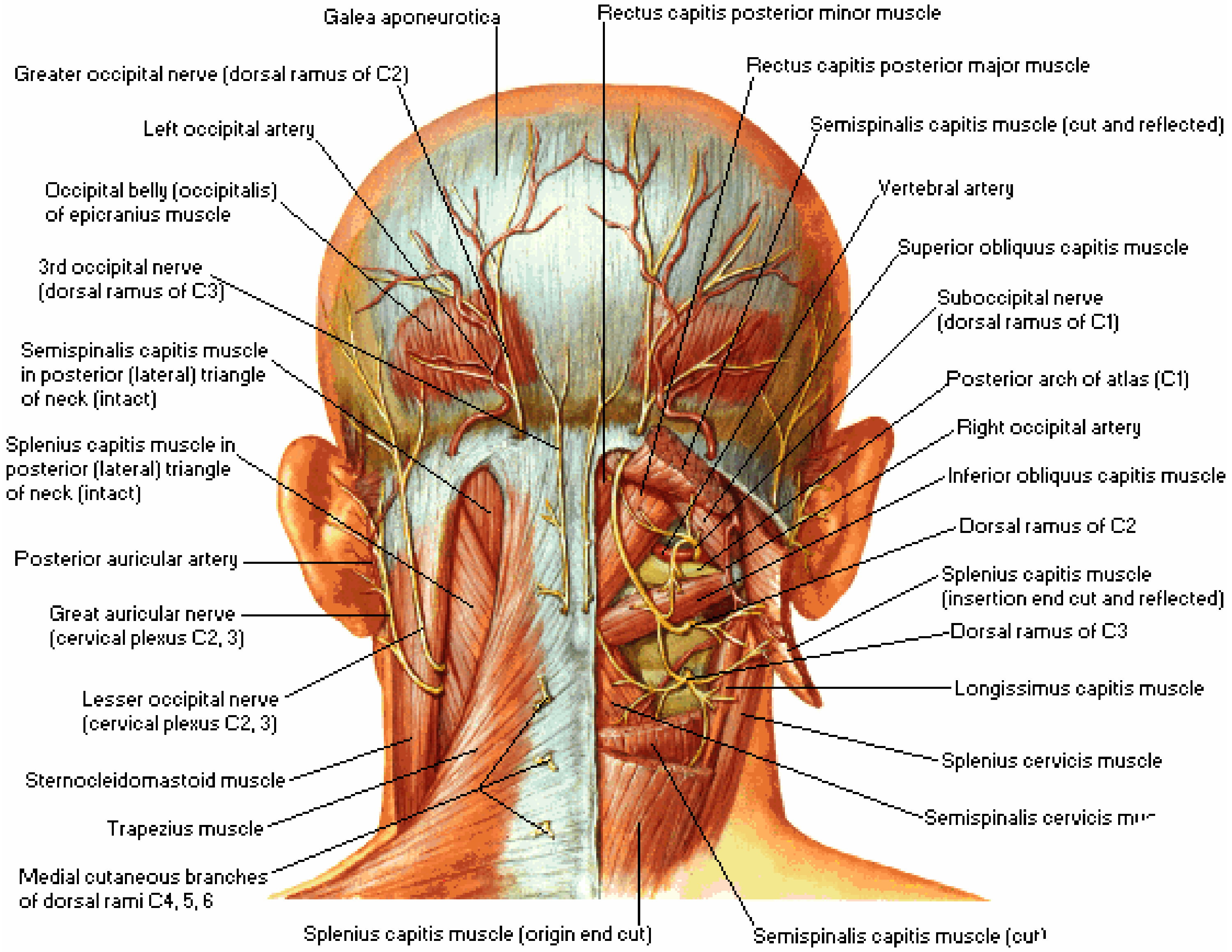


Deep Layers


Superior nuchal line of skull
Mastoid process
Posterior tubercle of atlas (C1)
Spinous process of axis (C2)
Semispinalis capitis muscle
Spinous process (C7)
External intercostal muscles
Semispinalis thoracis muscle
Multifidus muscle (intact)
Thoracolumbar fascia (anterior layer)
Thoracolumbar fascia (posterior layer) (cut)
Transversus abdominis muscle and aponeurosis
Multifidus muscle
Erector spinae muscle (cut)
Rectus capitis posterior minor muscle
Superior obliquus capitis muscle
Rectus capitis posterior major muscle
Transverse process of atlas (C1)
Inferior obliquus capitis muscle
Rotatores cervicis longus muscle
Rotatores cervicis brevis muscle
Interspinalis cervicis muscle
Levator costae muscle
Rotatores thoracis longus muscle
Rotatores thoracis brevis muscle
Levatores costarum brevis muscle
Levatores costarum longus muscle
Interspinalis lumborum muscle
Lateral intertransversi muscle
Quadratus lumborum muscle
Iliac crest

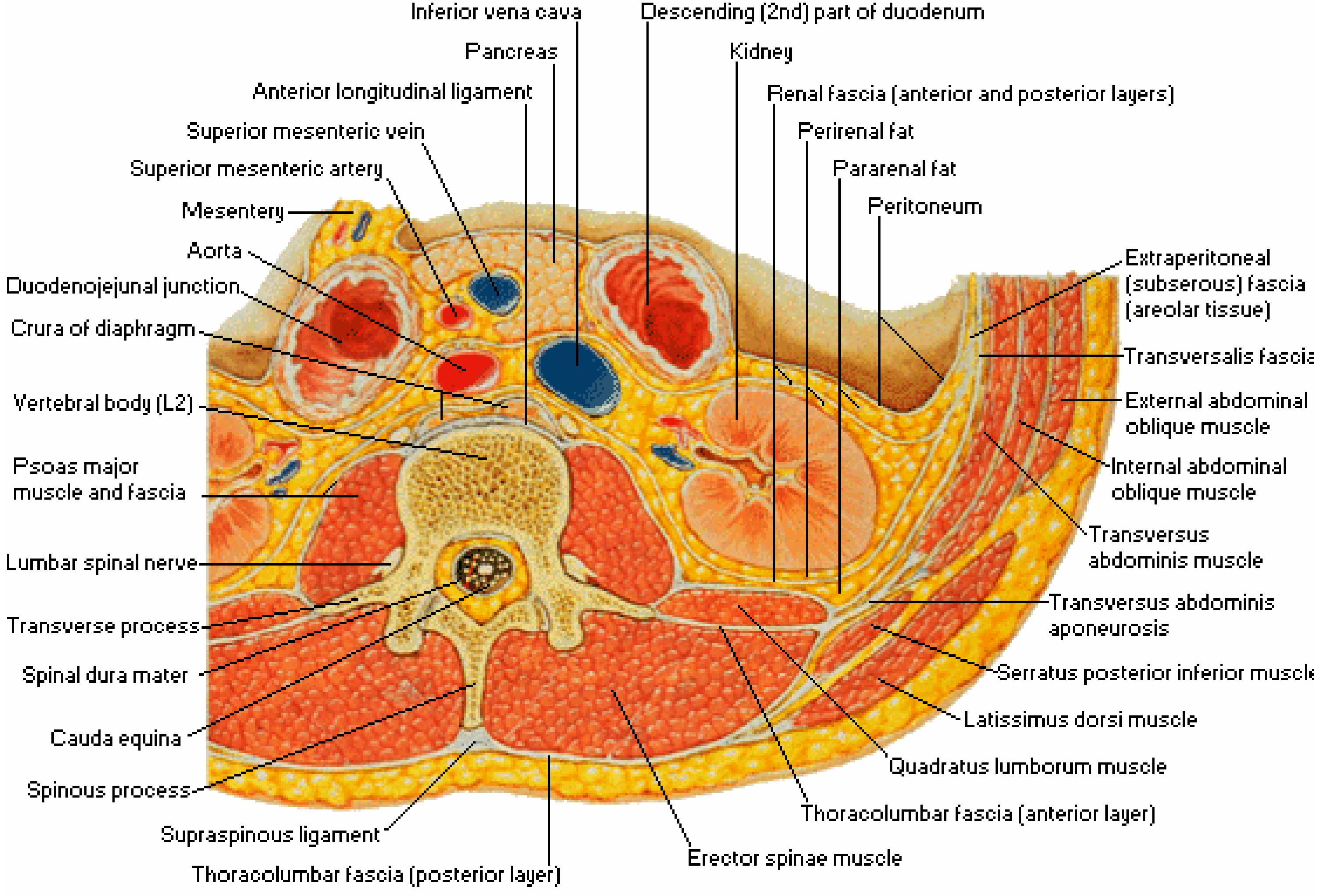


Rhomboideus minor muscle
Accessory nerve (XI)
Greater occipital nerve (dorsal ramus of C2)
Trapezius muscle (reflected)
3rd occipital nerve (dorsal ramus of C3)
Lesser occipital nerve
Great auricular nerve
Cervical plexus (ventral rami of C2, 3)
Levator scapulae muscle
Transverse cervical artery (descending branch) and vein
Trapezius muscle (in situ)
Spinal nerves (medial cutaneous branches of dorsal rami of C4- T6; C7, 8 are minimal)
Supraspinatus muscle
Spine of scapula
Deltoid muscle
Subtrapezial plexus
Infraspinatus fascia
Superior lateral brachial cutaneous nerve from axillary nerve (C5, 6)
Rhomboideus major muscle
Teres minor and major muscles
Latissimus dorsi muscle
Spinal nerves (lateral cutaneous branches of ventral intercostal rami)
Spinous process of 12th thoracic vertebra
Spinal nerves (lateral cutaneous branches of dorsal rami of T7- 12)
Thoracolumbar fascia
External abdominal oblique muscle
Gluteus maximus muscle
Iliohypogastric nerve (ventral ramus of L1)
Iliac crest
Superior cluneal nerves (dorsal rami of of S1, 2, 3)
Middle cluneal nerves (dorsal rami of S1, 2, 3)
Inferior cluneal nerves from posterior femoral cutaneous nerve (S1, 2, 3)

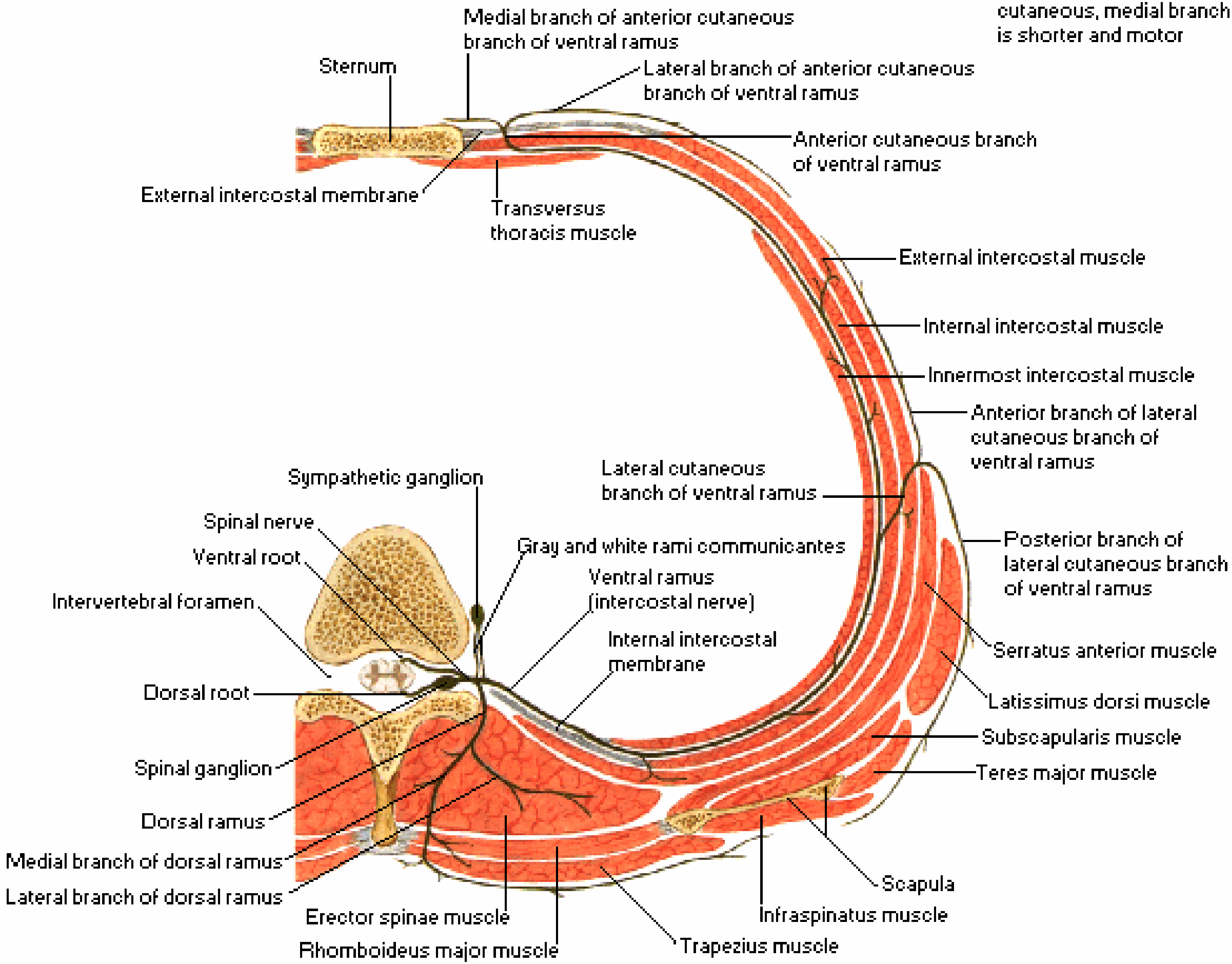


Galea aponeurotica
Rectus capitis posterior minor muscle
Greater occipital nerve (dorsal ramus of C2)
Rectus capitis posterior major muscle
Left occipital artery
Semispinalis capitis muscle (cut and reflected)
Occipital belly (occipitalis) of epicranius muscle
Vertebral artery
Superior obliquus capitis muscle
3rd occipital nerve (dorsal ramus of C3)
Suboccipital nerve (dorsal ramus of C1)
Semispinalis capitis muscle in posterior (lateral) triangle of neck (intact)
Posterior arch of atlas (C1)
Right occipital artery
Splenius capitis muscle in posterior (lateral) triangle of neck (intact)
Inferior obliquus capitis muscle
Dorsal ramus of C2
Posterior auricular artery
Splenius capitis muscle (insertion end cut and reflected)
Great auricular nerve (cervical plexus C2, 3)
Dorsal ramus of C3
Longissimus capitis muscle
Lesser occipital nerve (cervical plexus C2, 3)
Splenius cervicis muscle
Sternocleidomastoid muscle
Semispinalis cervicis mu
Trapezius muscle
Medial cutaneous branches of dorsal rami C4, 5, 6
Splenius capitis muscle (origin end cut)
Semispinalis capitis muscle (cu

Cross Section

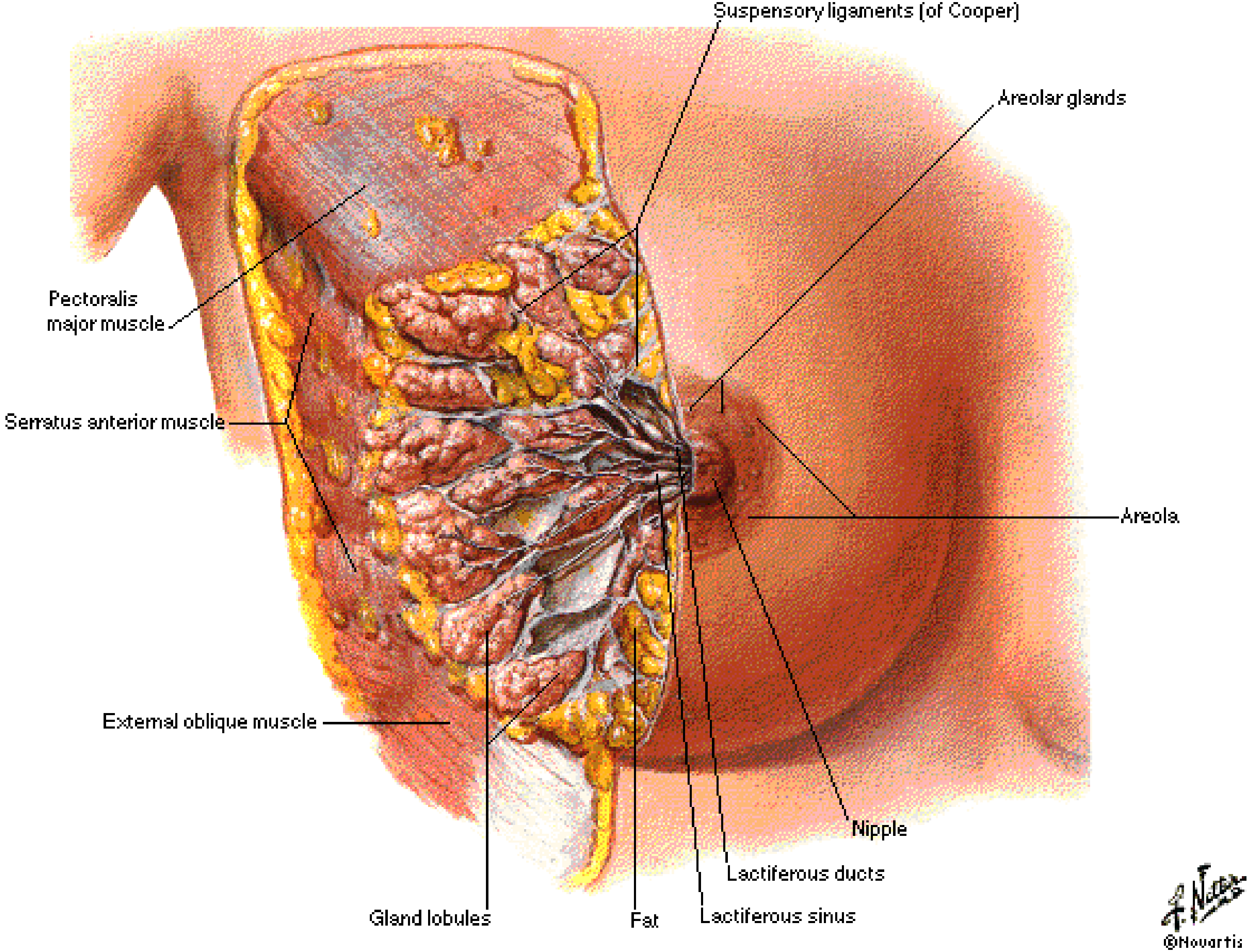


region lateral branch of dorsal ramus is longer and cutaneous, medial branch is shorter and motor

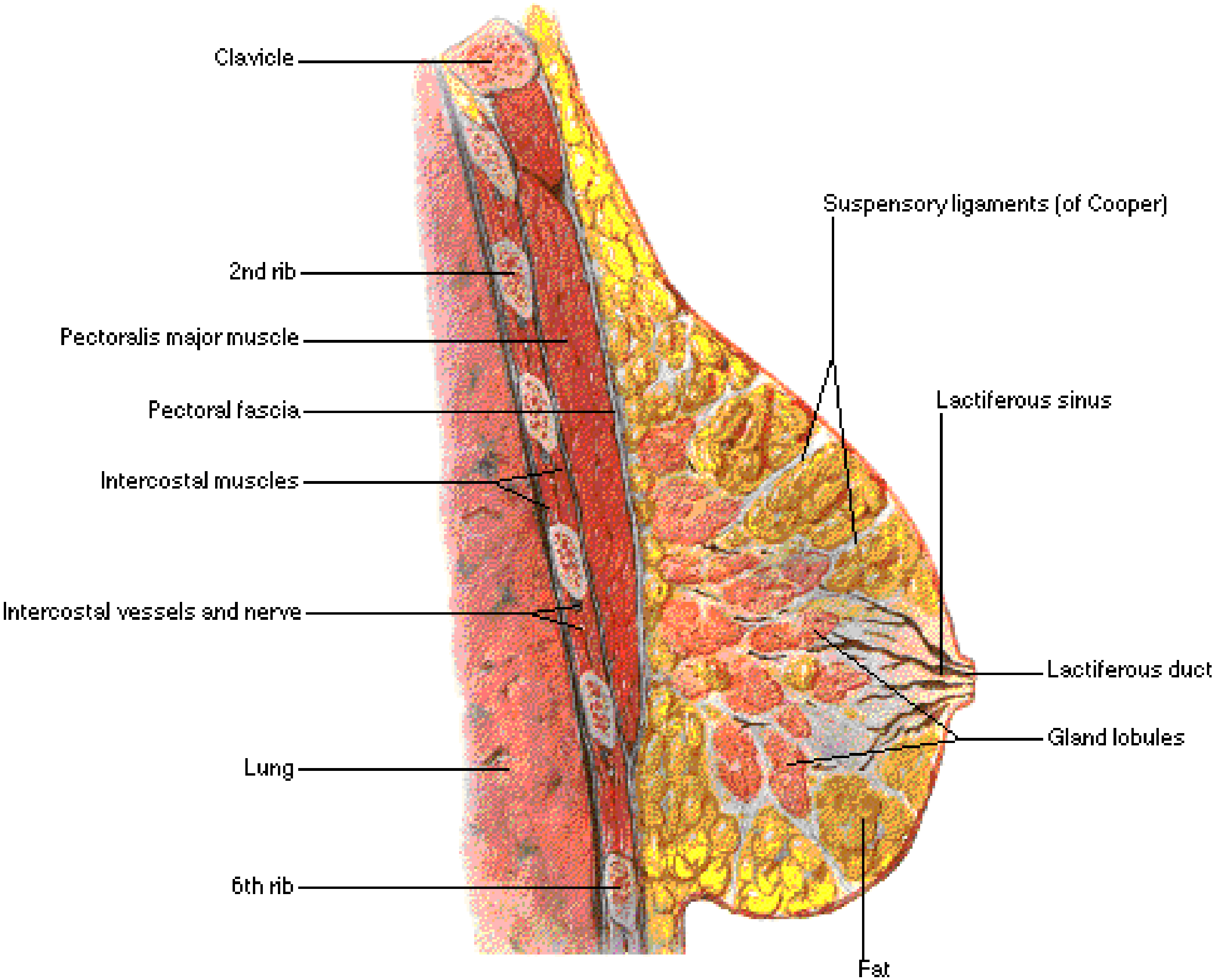


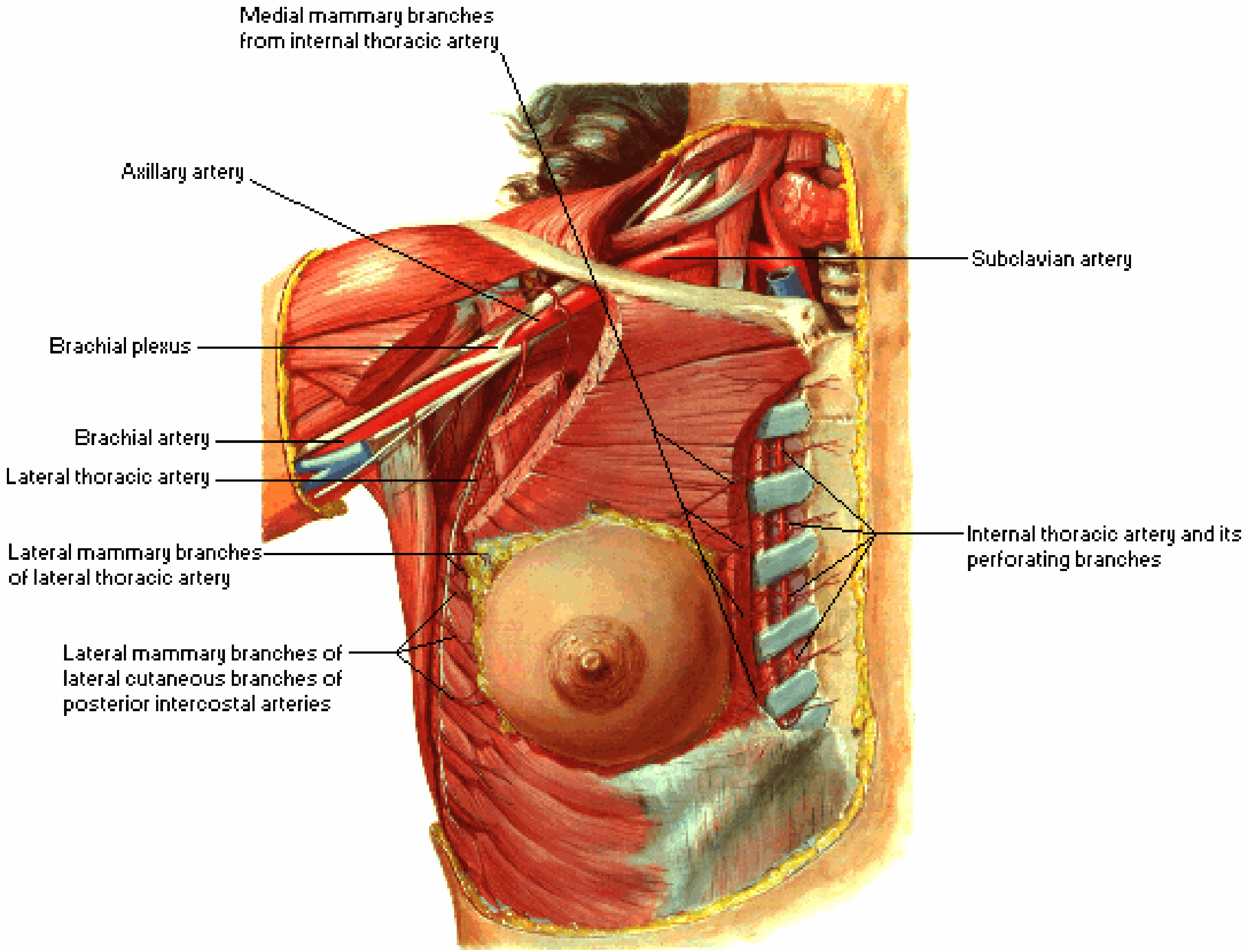
Mammary Gland

Anterolateral Dissection

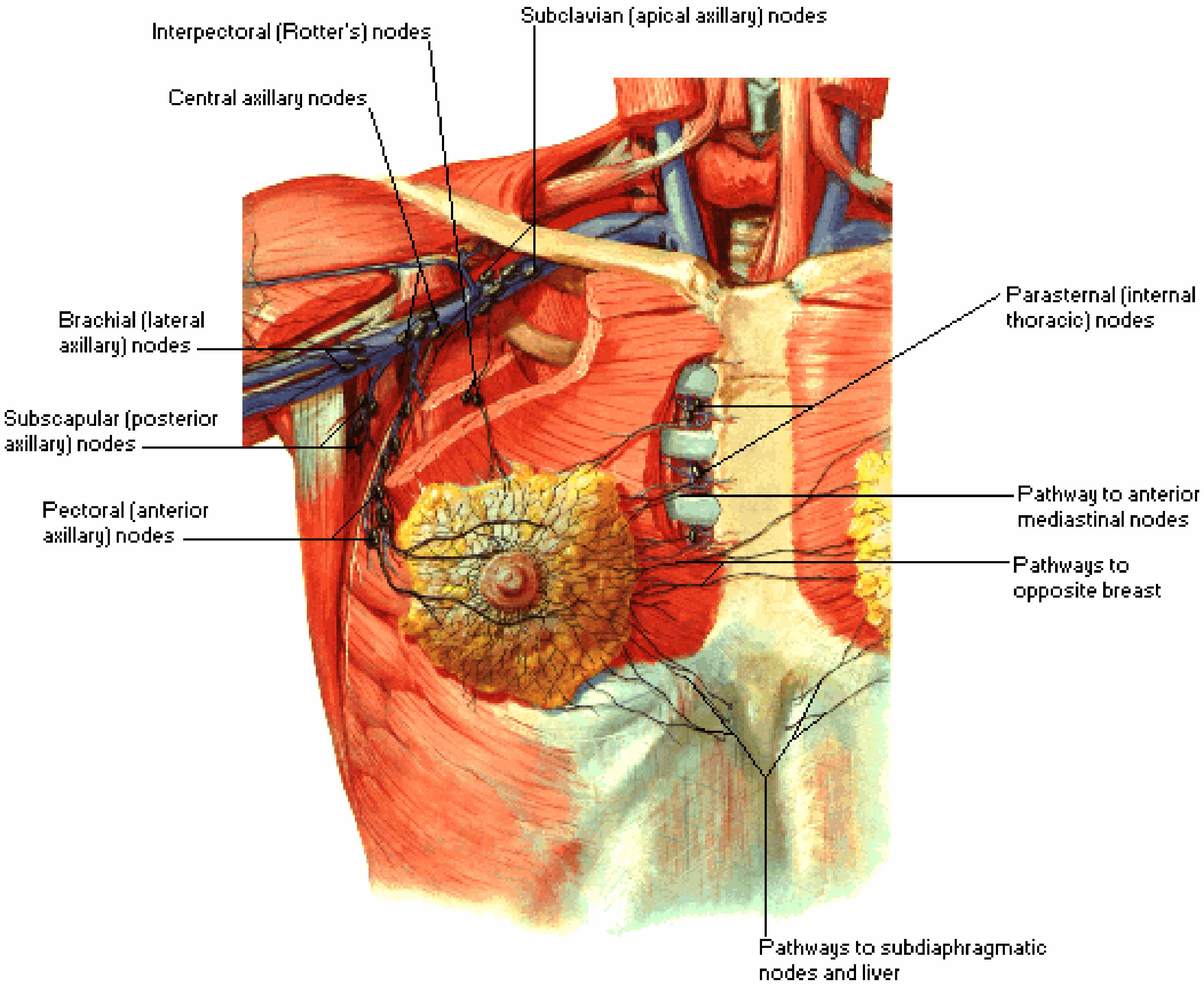


Mammary Gland
Sagittal Section





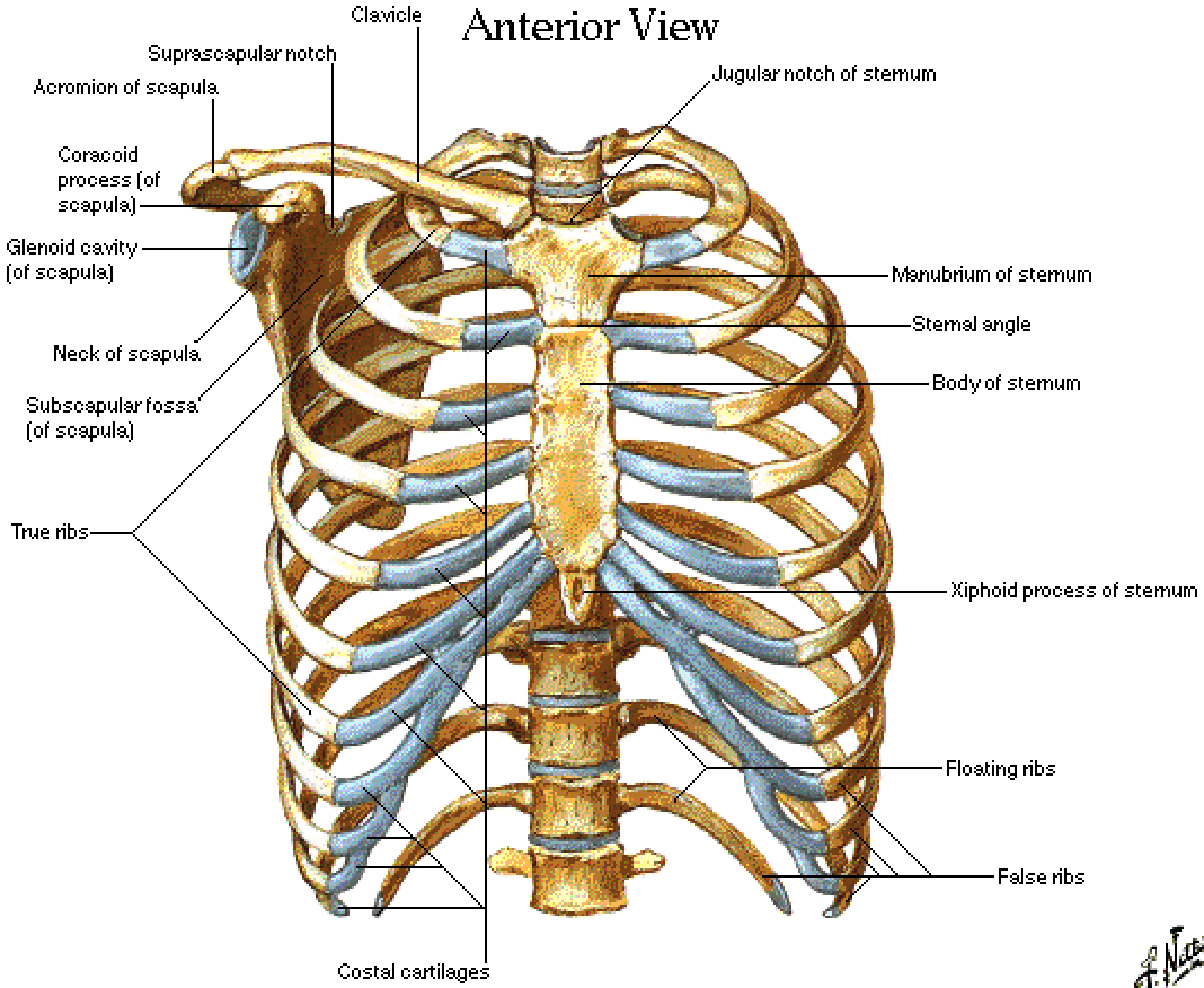
Medial mammary branches
from internal thoracic artery
Axillary artery
Subclavian artery
Brachial plexus
Brachial artery
Lateral thoracic artery
Internal thoracic artery and its
perforating branches
Lateral mammary branches
of lateral thoracic artery
Lateral mammary branches of
lateral cutaneous branches of
posterior intercostal arteries



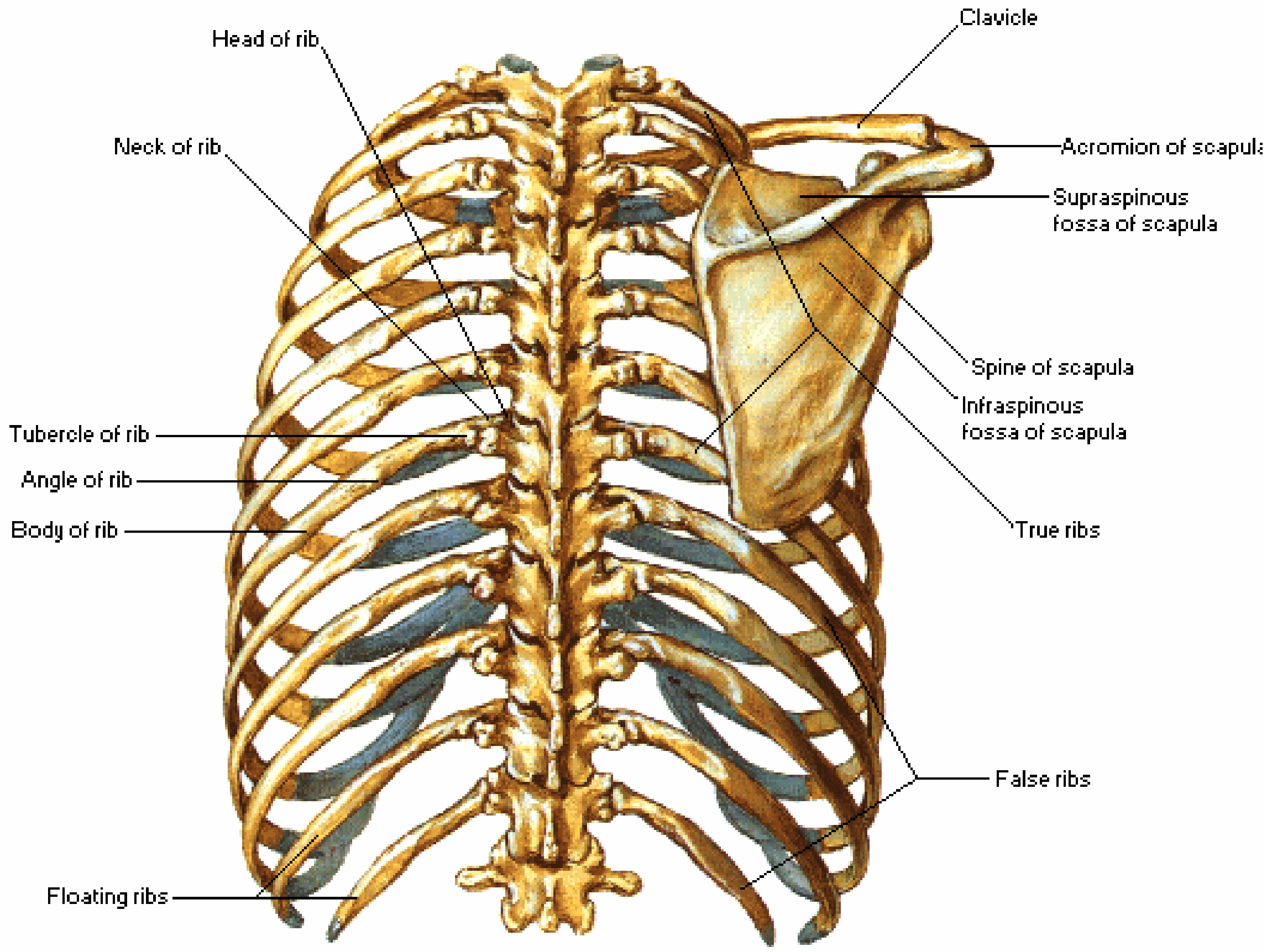
Subclavian (apical axillary) nodes
Interpectoral (Rotter's) nodes
Central axillary nodes
Brachial (lateral axillary) nodes
Subscapular (posterior axillary) nodes
Pectoral (anterior axillary) nodes
Parasternal (internal thoracic) nodes
Pathway to anterior mediastinal nodes
Pathways to opposite breast
Pathways to subdiaphragmatic nodes and liver

Bony Framework of Thorax

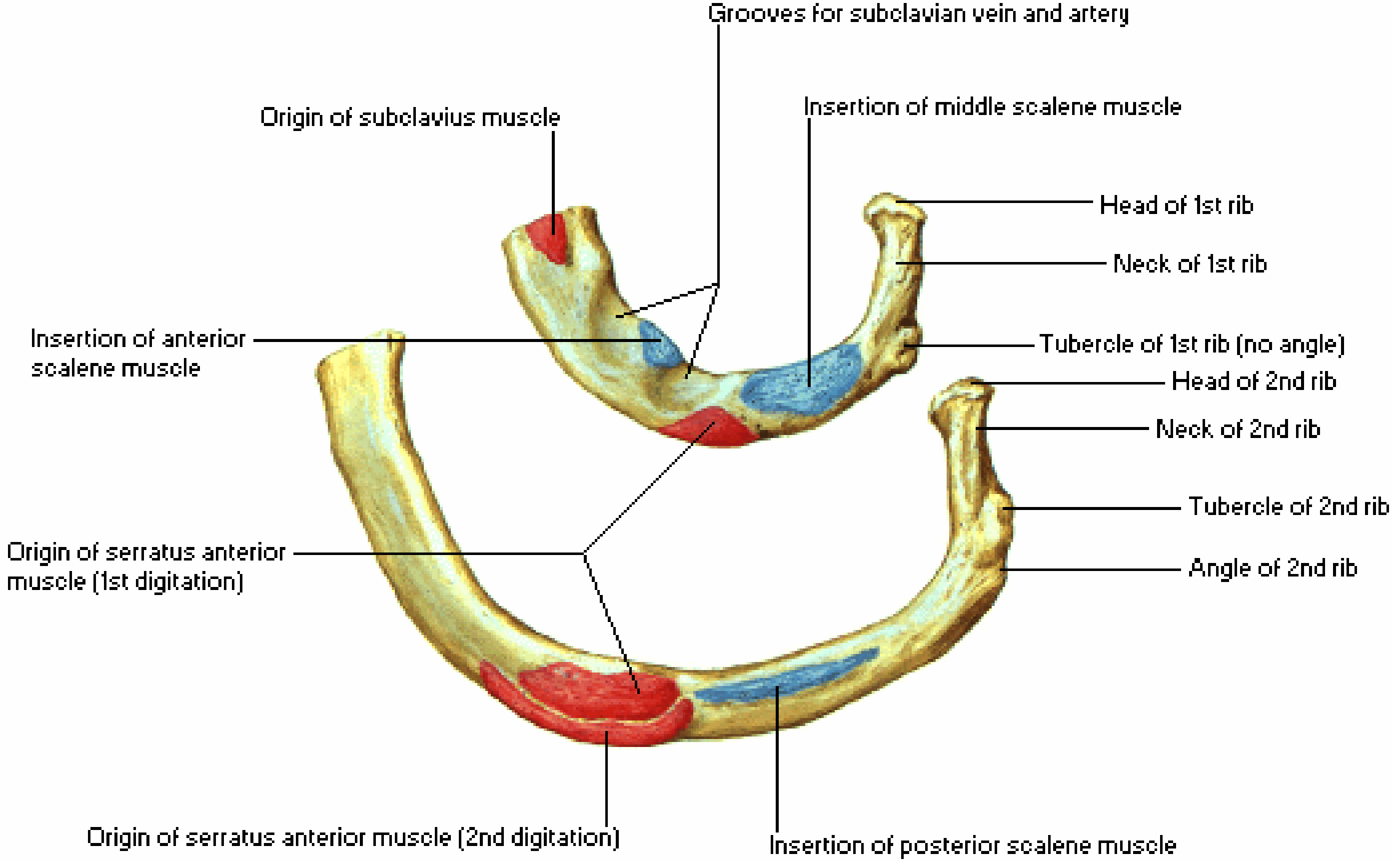
Anterior View



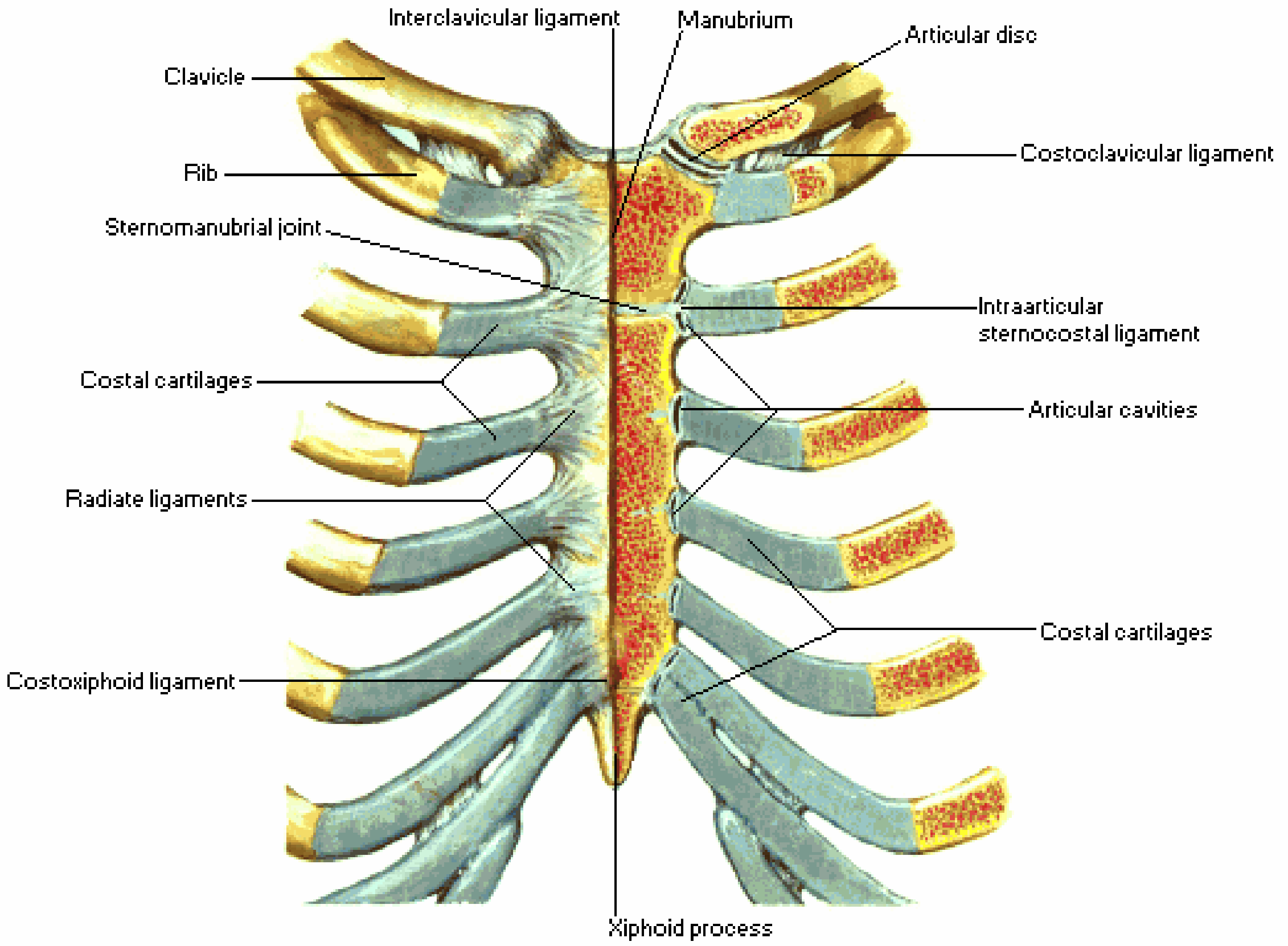
Posterior View



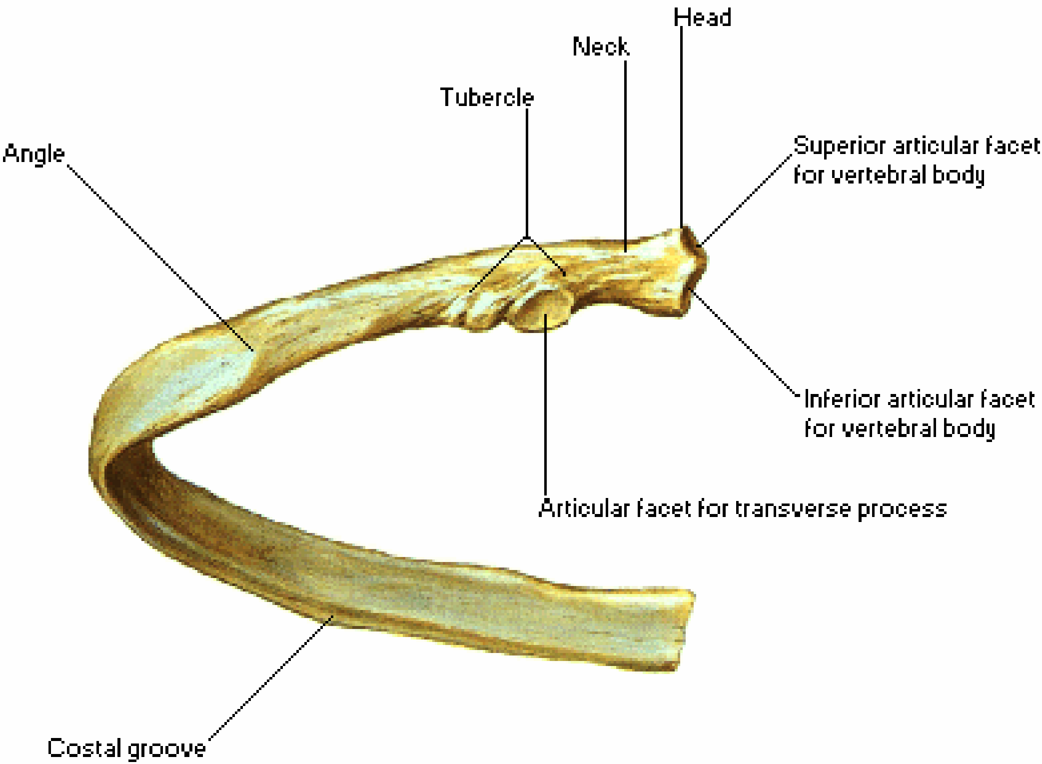
Superior Views



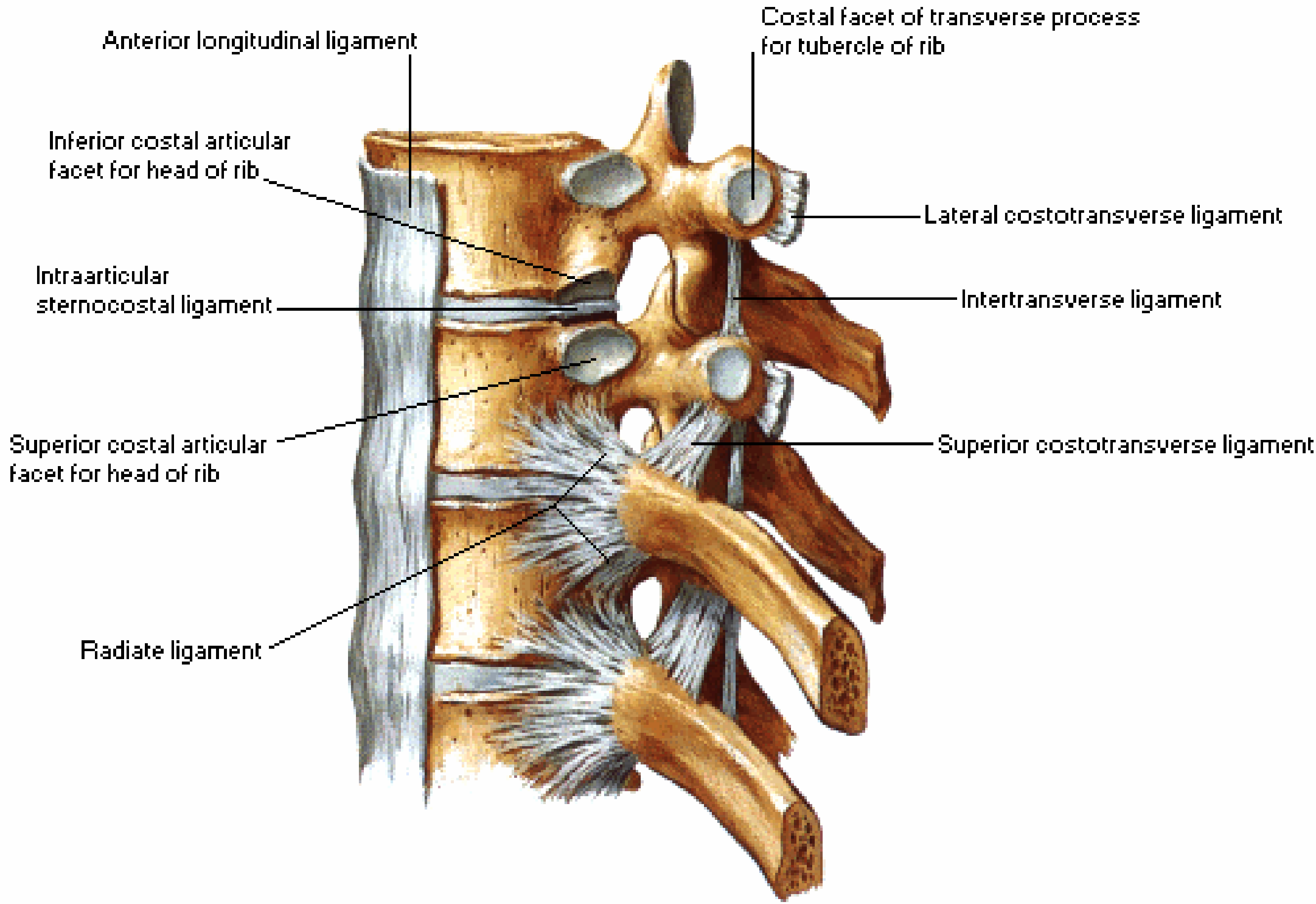
Anterior View



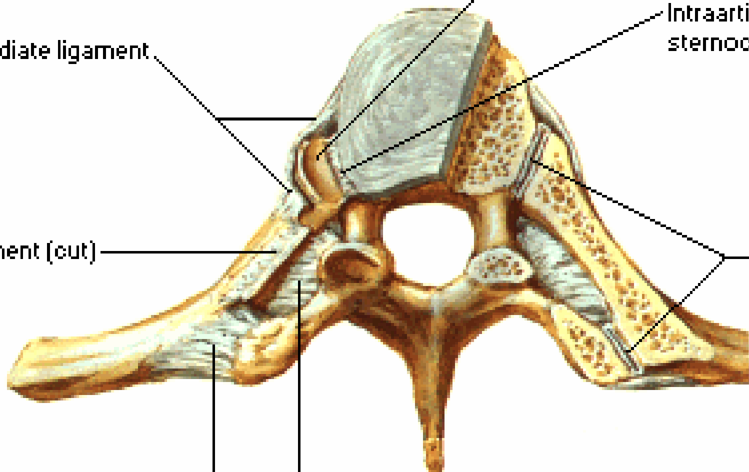
Posterior View



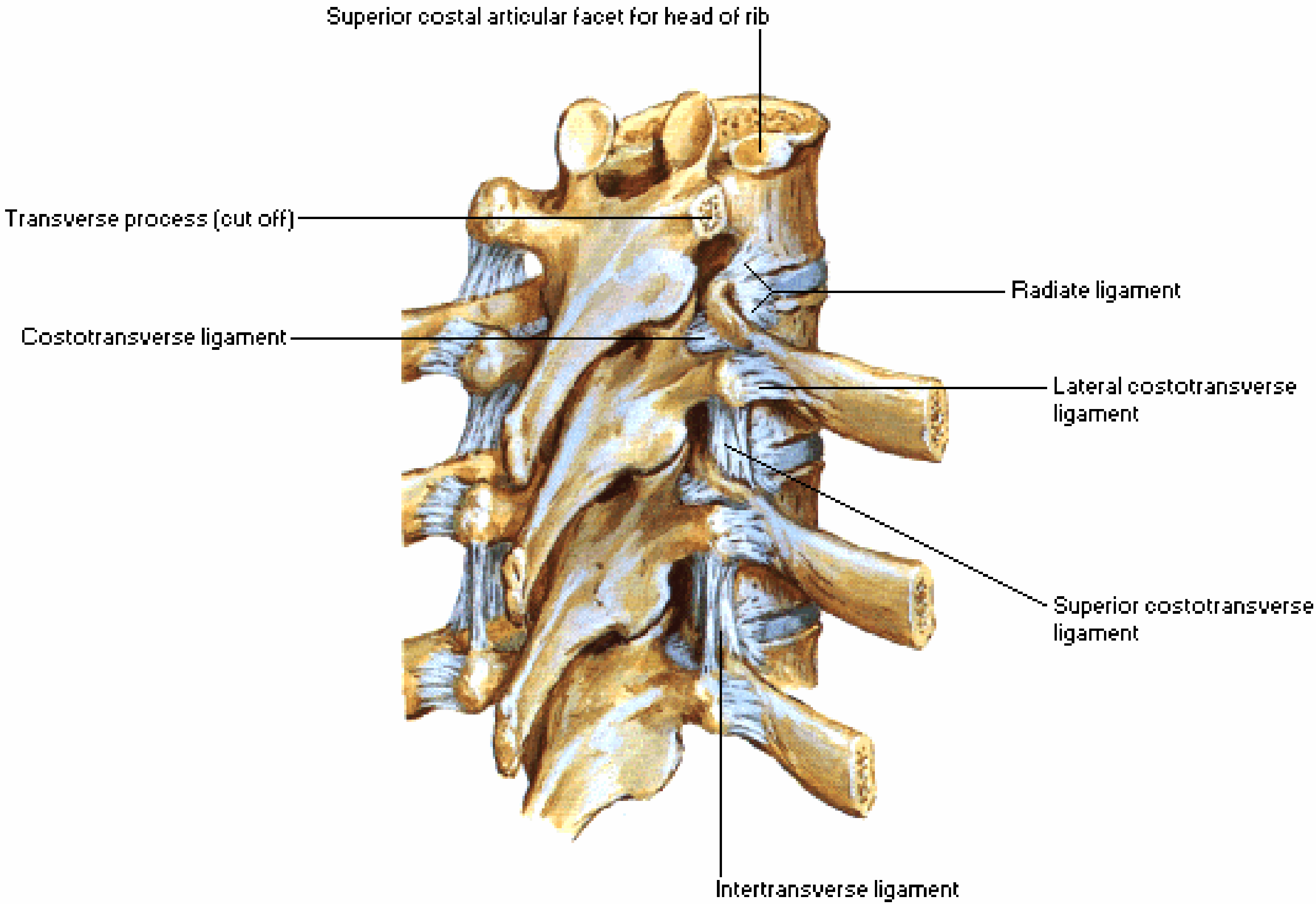
Left Lateral View

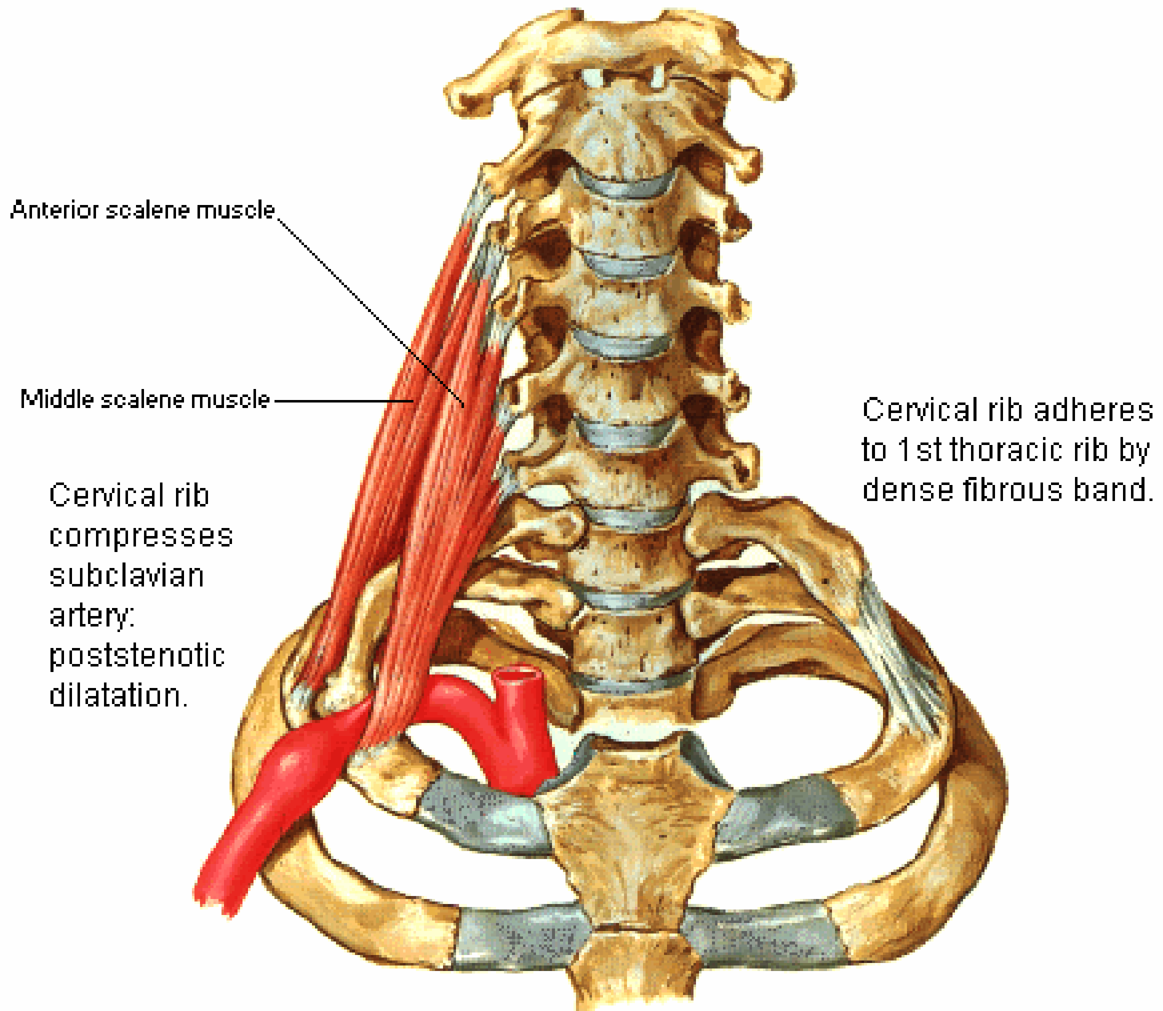


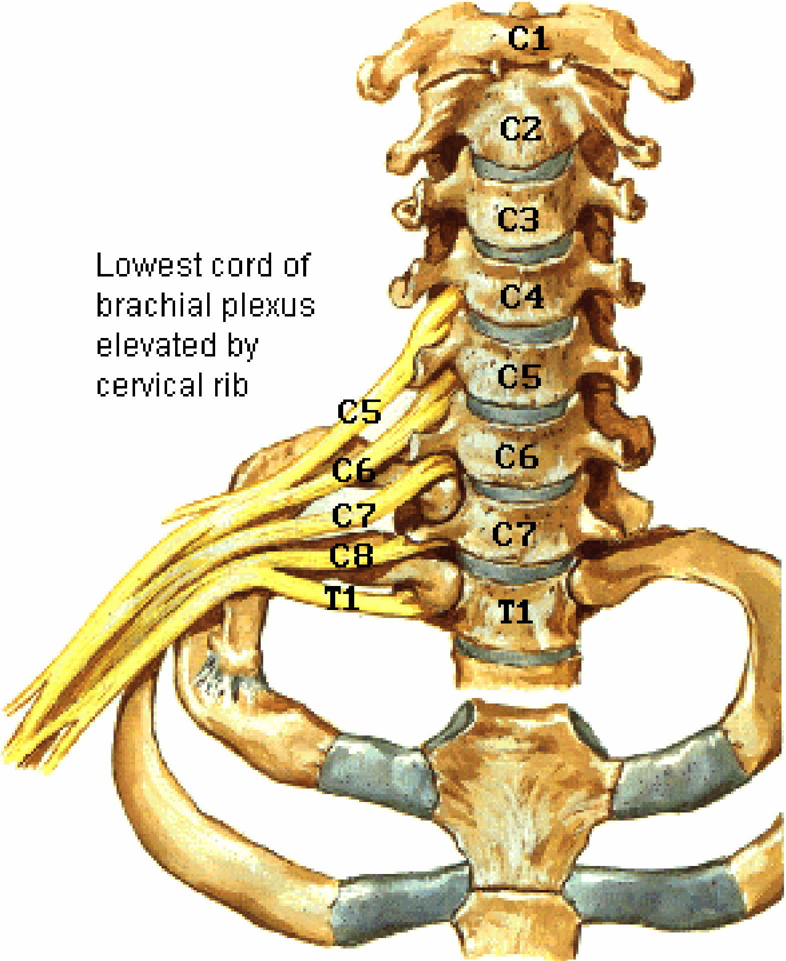
Transverse Section - Superior View

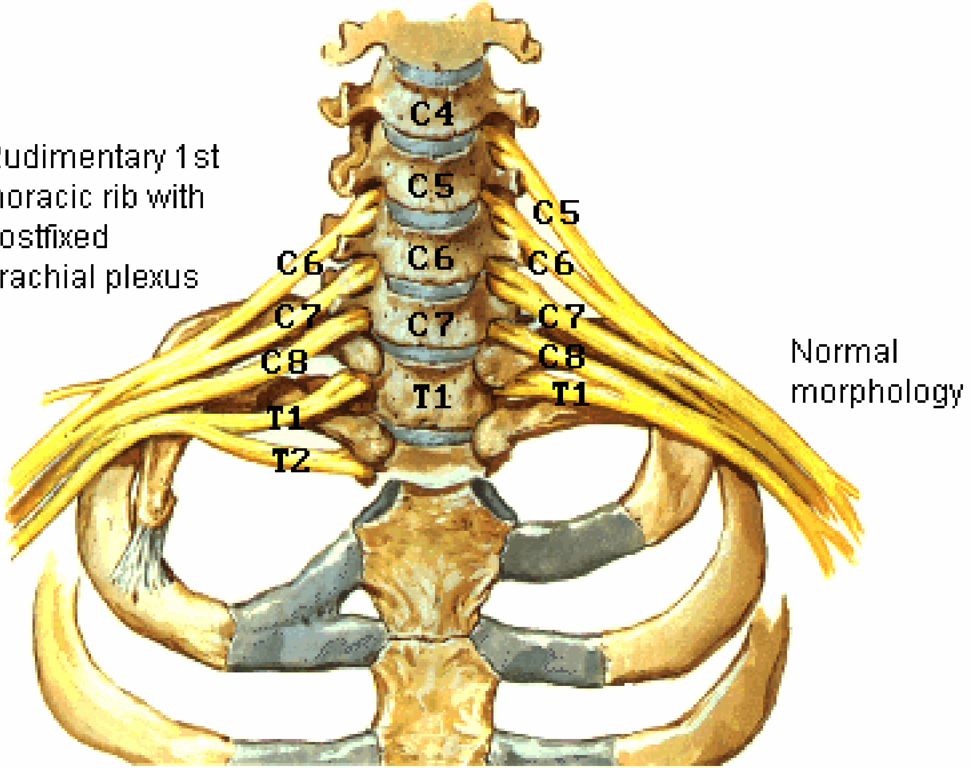


Right Posterolateral View

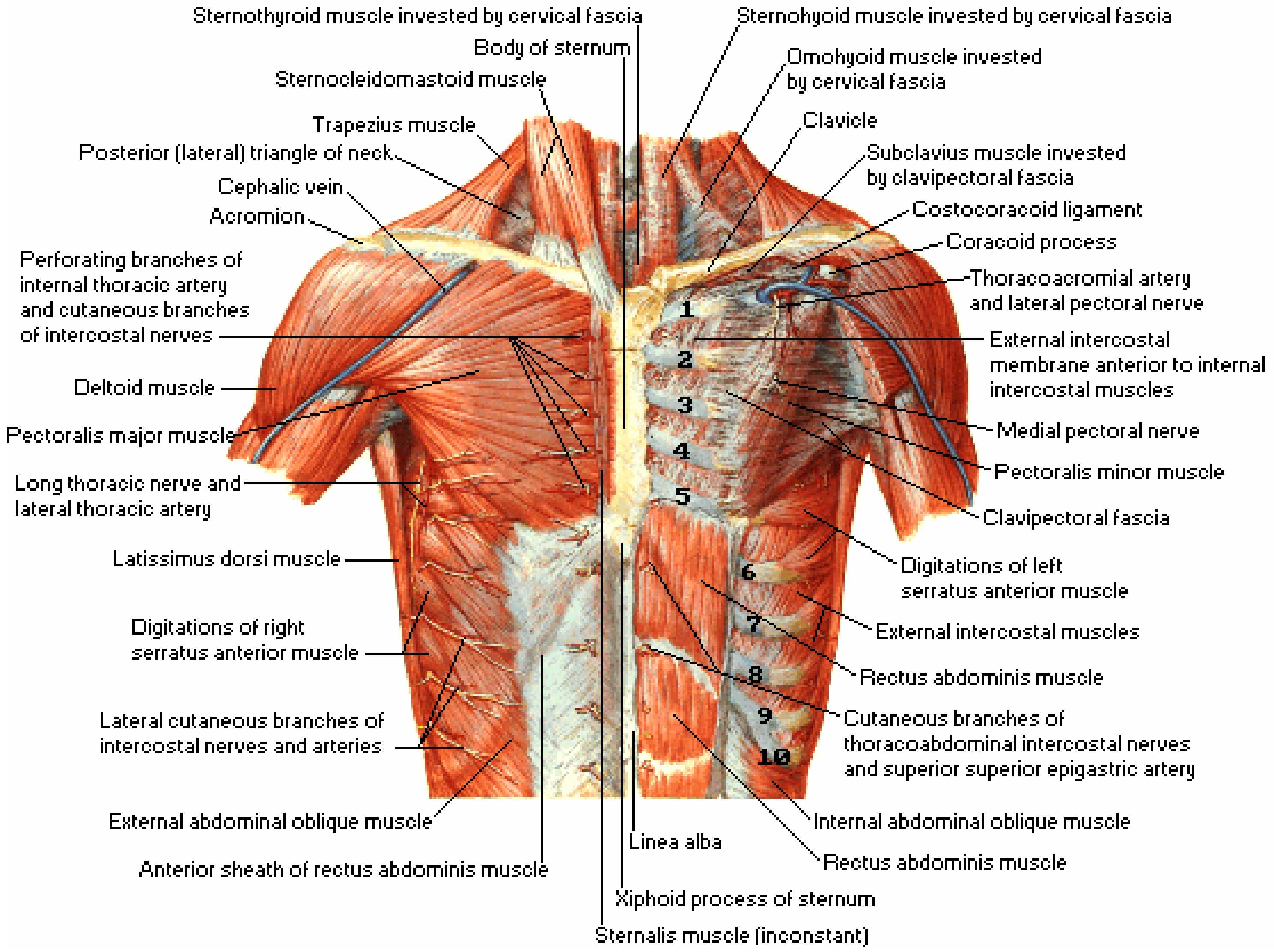



Anterior scalene muscle
Middle scalene muscle
Cervical rib compresses subclavian artery: poststenotic dilatation.
Cervical rib adheres to 1st thoracic rib by dense fibrous band.

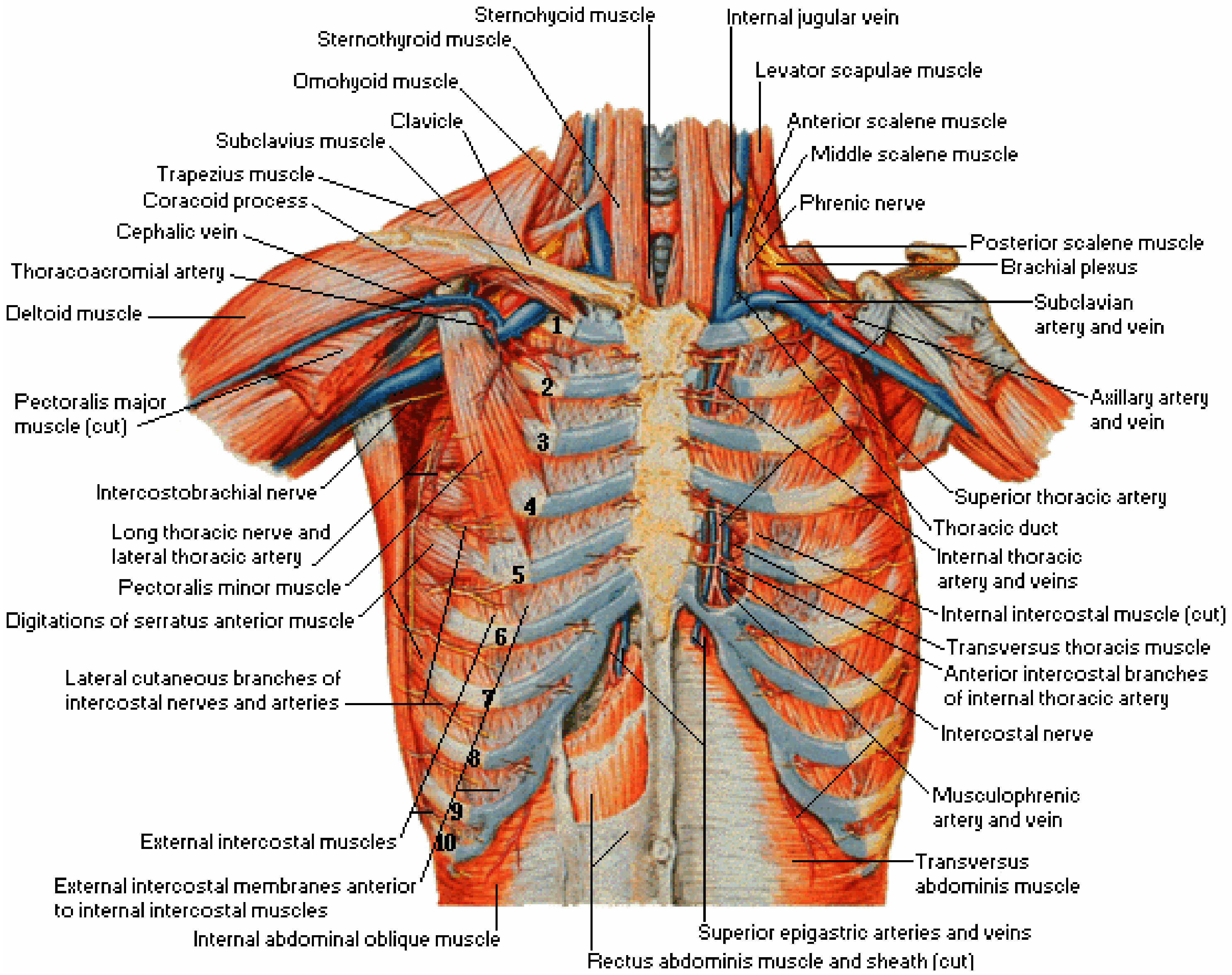

C1
C2
C3
C4
C5
C6
C7
T1
Lowest cord of brachial plexus elevated by cervical rib
C5
C6
C7
C8
T1



Note: cervical rib also often asymptomatic

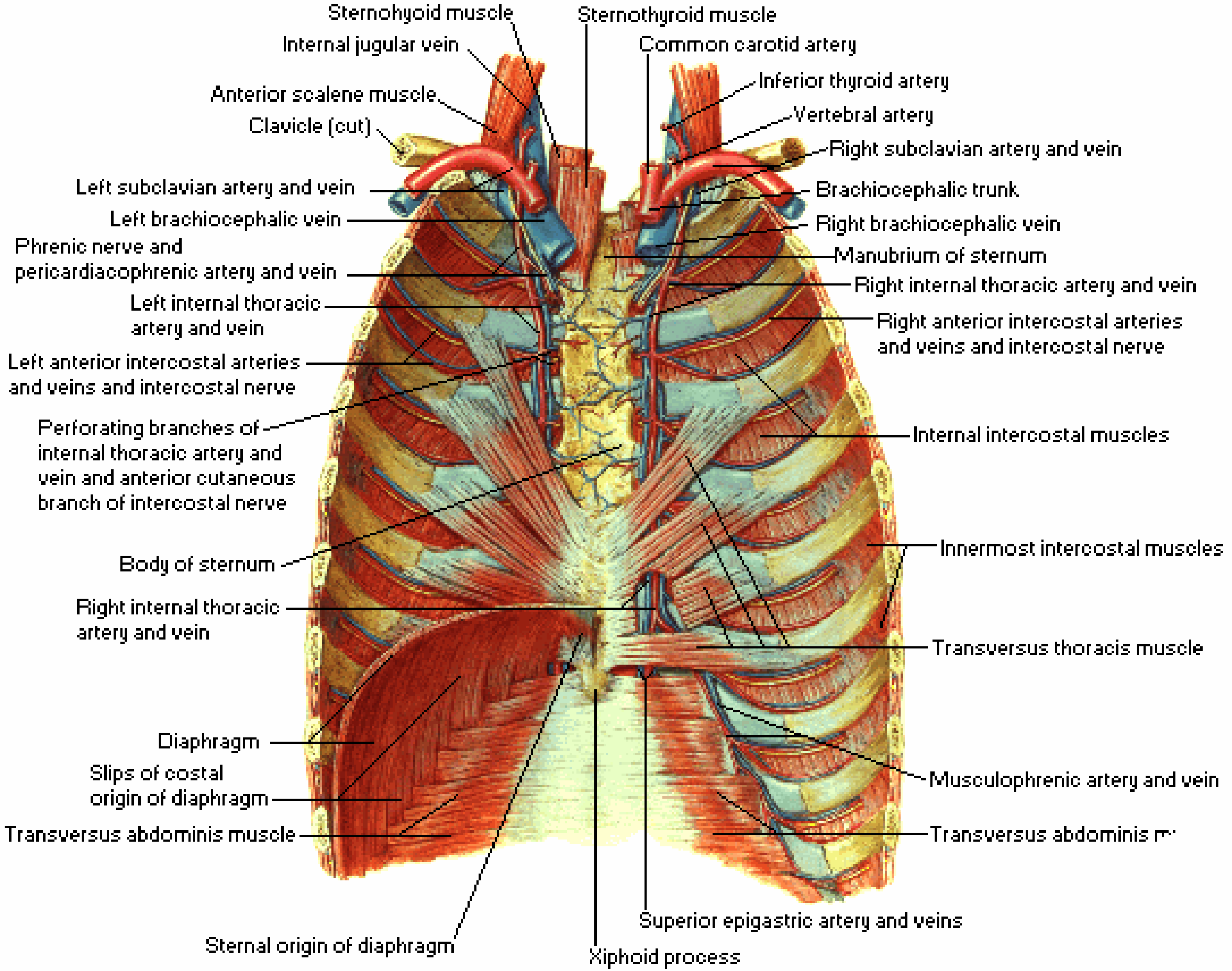


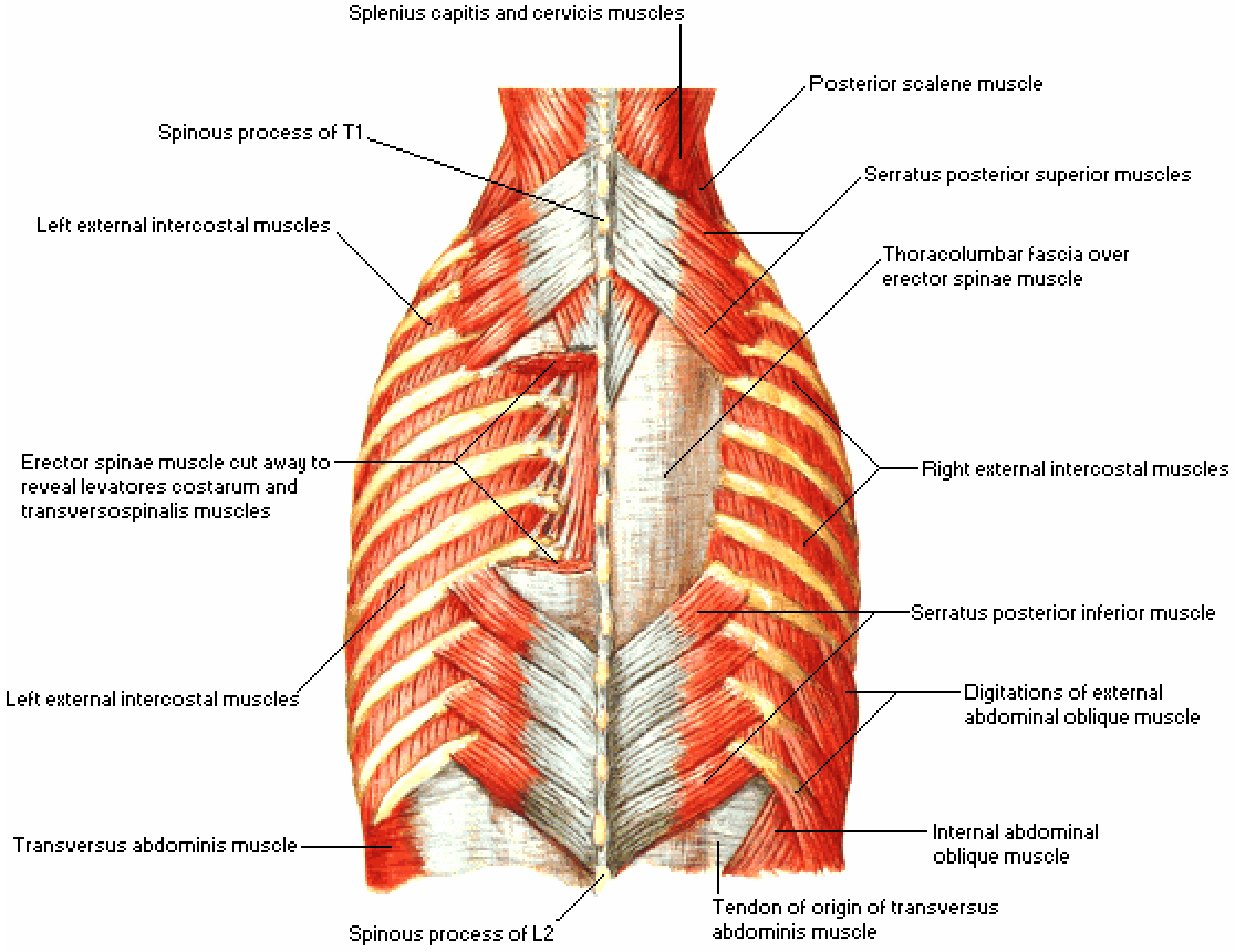
Sternothyroid muscle invested by cervical fascia
Sternohyoid muscle invested by cervical fascia
Body of sternum
Omohyoid muscle invested by cervical fascia
Sternocleidomastoid muscle
Clavicle
Trapezius muscle
Subclavius muscle invested by clavipectoral fascia
Posterior (lateral) triangle of neck
Cephalic vein
Costocoracoid ligament
Acromion
Coracoid process
Perforating branches of internal thoracic artery and cutaneous branches of intercostal nerves
Thoracoacromial artery and lateral pectoral nerve
External intercostal membrane anterior to internal intercostal muscles
Deltoid muscle
Pectoralis major muscle
Medial pectoral nerve
Pectoralis minor muscle
Long thoracic nerve and lateral thoracic artery
Clavipectoral fascia
Latissimus dorsi muscle
Digitations of left serratus anterior muscle
External intercostal muscles
Digitations of right serratus anterior muscle
Rectus abdominis muscle
Lateral cutaneous branches of intercostal nerves and arteries
Cutaneous branches of thoracoabdominal intercostal nerves and superior superior epigastric artery
External abdominal oblique muscle
Internal abdominal oblique muscle
Linea alba
Anterior sheath of rectus abdominis muscle
Rectus abdominis muscle
Xiphoid process of sternum
Sternalis muscle (inconstant)
1
2
3
4
5
6
7
8
9
10

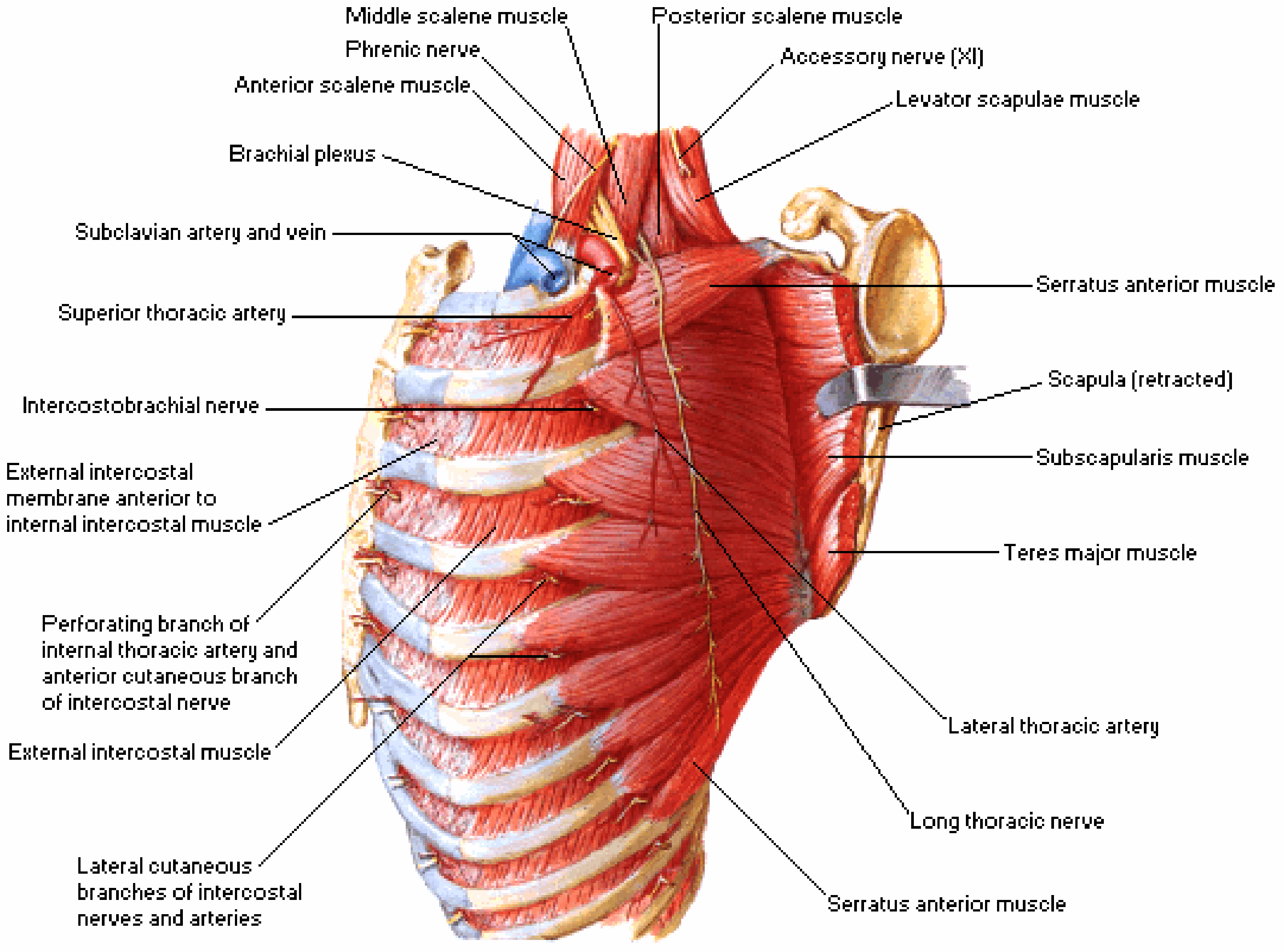


Sternohyoid muscle
Internal jugular vein
Sternothyroid muscle
Levator scapulae muscle
Omohyoid muscle
Clavicle
Anterior scalene muscle
Subclavius muscle
Middle scalene muscle
Trapezius muscle
Coracoid process
Phrenic nerve
Cephalic vein
Posterior scalene muscle
Thoracoacromial artery
Brachial plexus
Deltoid muscle
Subclavian artery and vein
1
2
3
4
5
6
7
8
9
10
Pectoralis major muscle (cut)
Axillary artery and vein
Intercostobrachial nerve
Superior thoracic artery
Long thoracic nerve and lateral thoracic artery
Thoracic duct
Internal thoracic artery and veins
Pectoralis minor muscle
Internal intercostal muscle (cut)
Digitations of serratus anterior muscle
Transversus thoracis muscle
Anterior intercostal branches of internal thoracic artery
Lateral cutaneous branches of intercostal nerves and arteries
Intercostal nerve
Musculophrenic artery and vein
External intercostal muscles
Transversus abdominis muscle
External intercostal membranes anterior to internal intercostal muscles
Internal abdominal oblique muscle
Superior epigastric arteries and veins
Rectus abdominis muscle and sheath (cut)

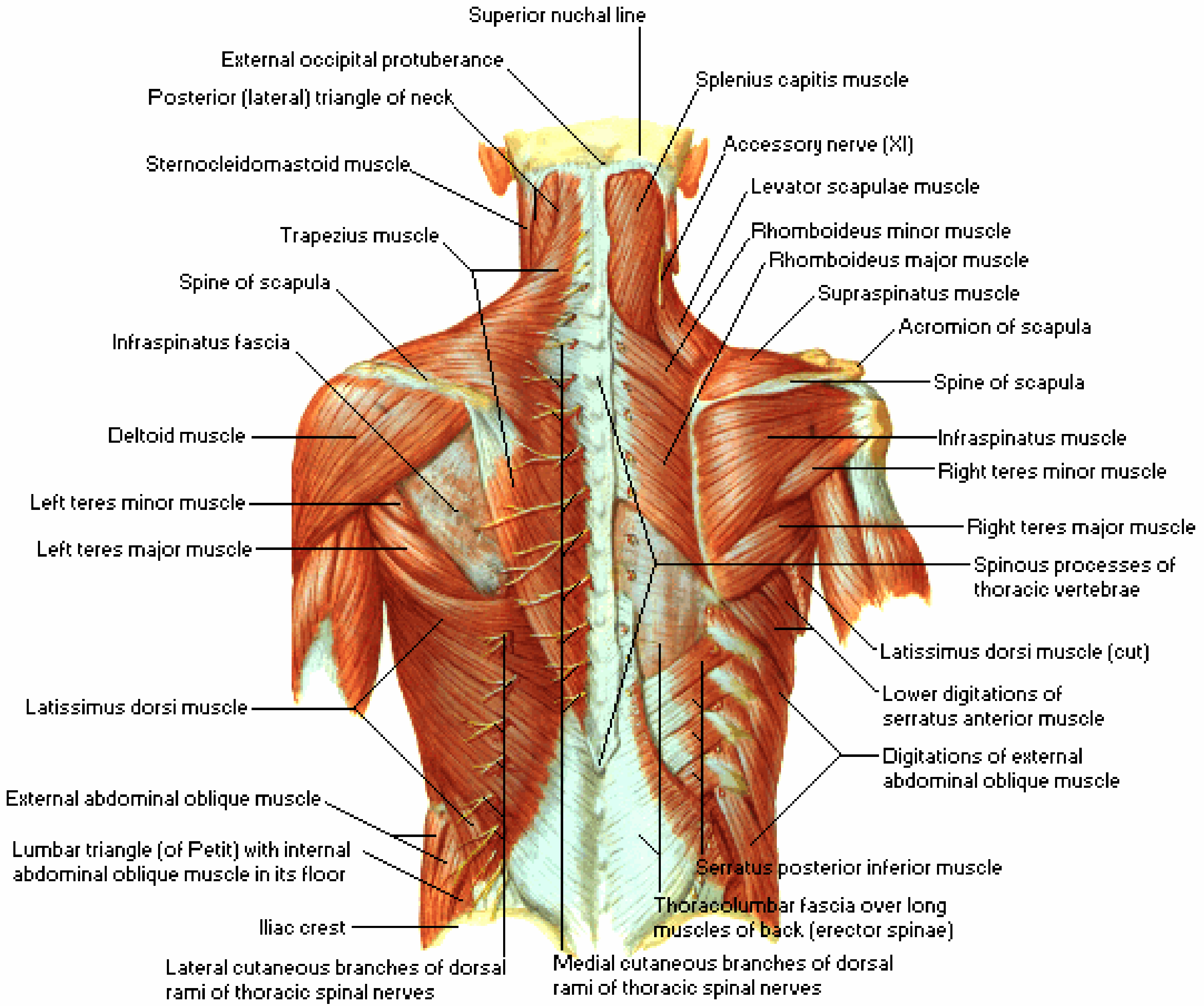
Internal View

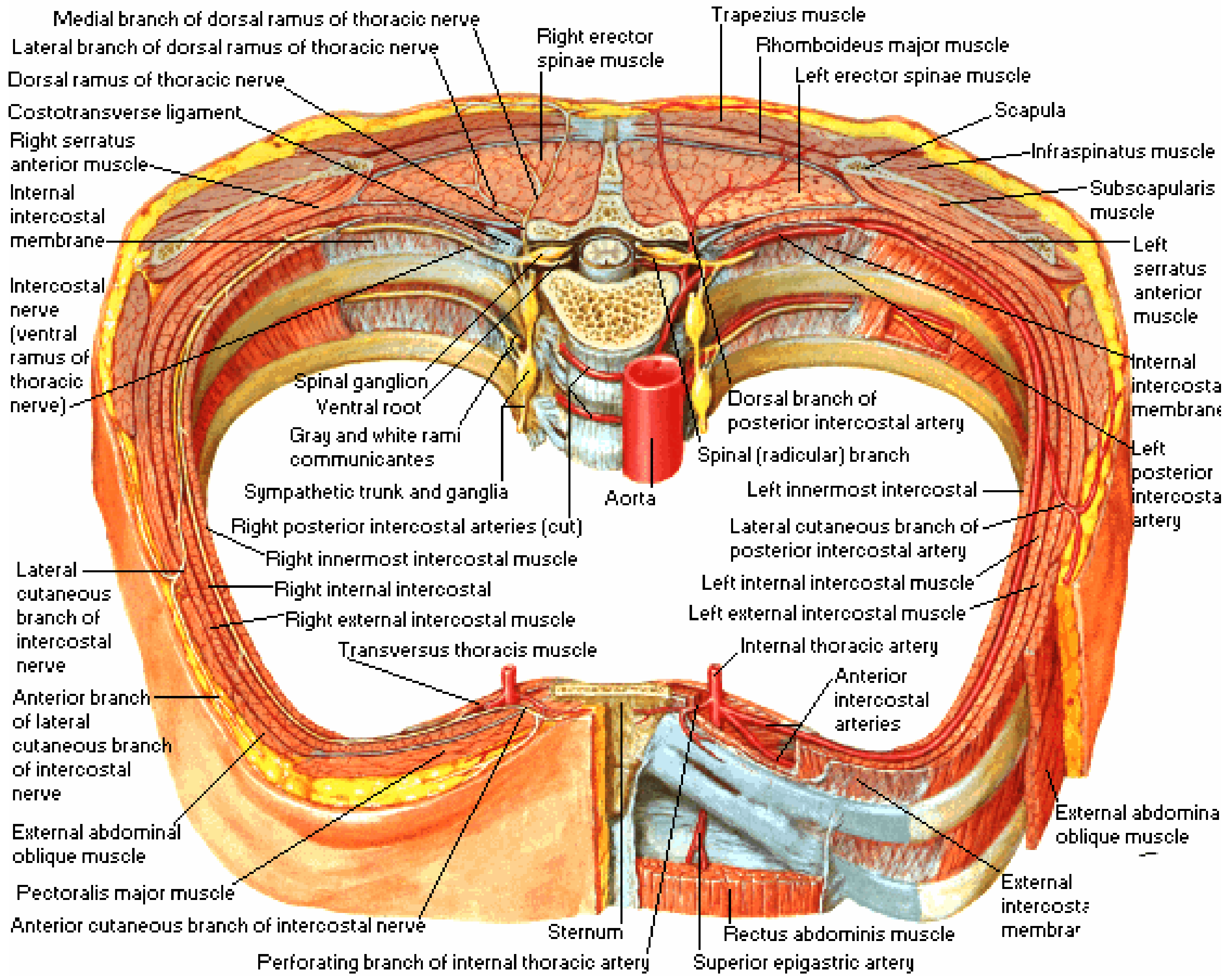



Splenius capitis and cervicis muscles
Posterior scalene muscle
Spinous process of T1
Serratus posterior superior muscles
Left external intercostal muscles
Thoracolumbar fascia over erector spinae muscle
Erector spinae muscle cut away to reveal levatores costarum and transversospinalis muscles
Right external intercostal muscles
Serratus posterior inferior muscle
Left external intercostal muscles
Digitations of external abdominal oblique muscle
Internal abdominal oblique muscle
Transversus abdominis muscle
Tendon of origin of transversus abdominis muscle
Spinous process of L2

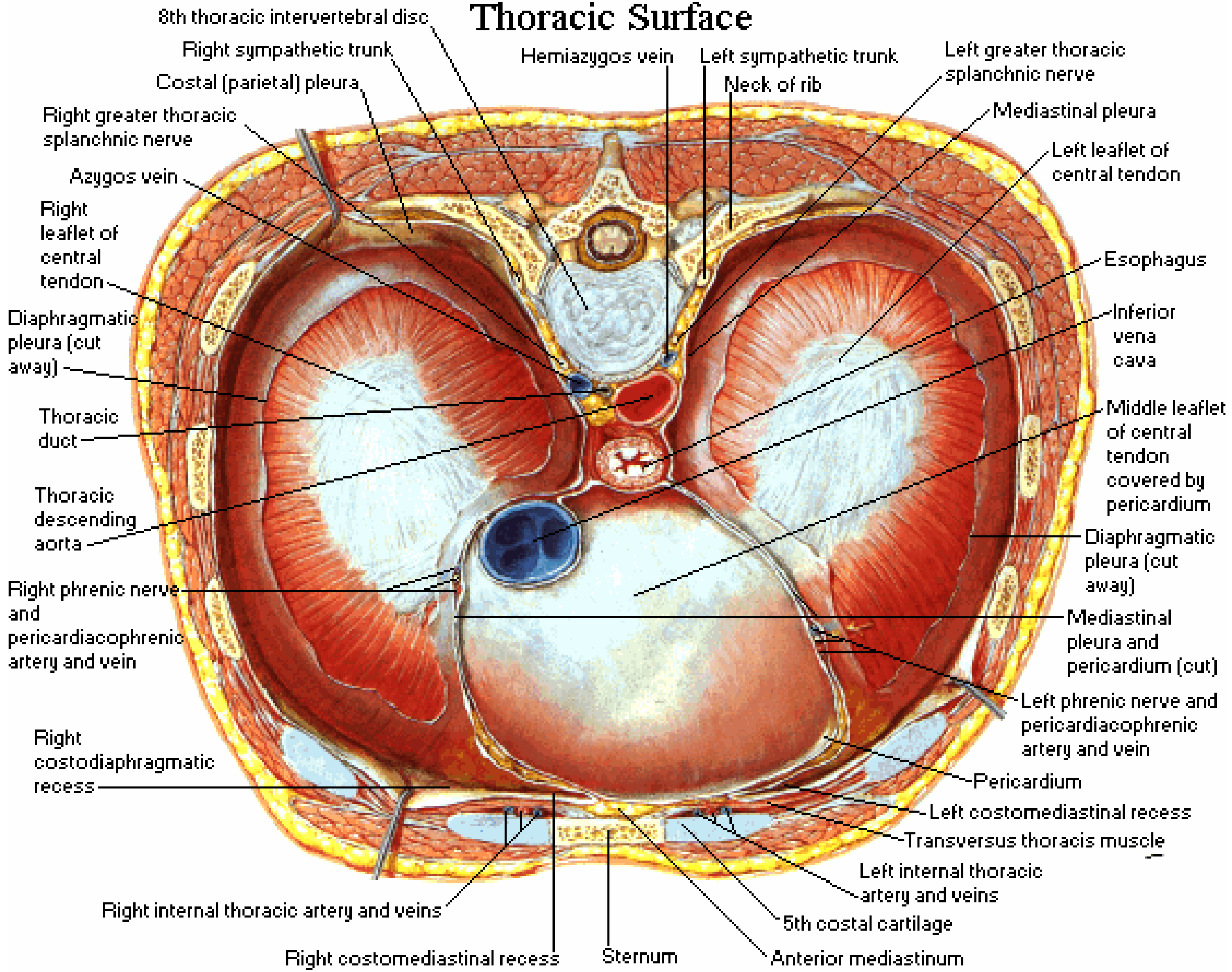


Middle scalene muscle
Posterior scalene muscle
Phrenic nerve
Accessory nerve (XI)
Anterior scalene muscle
Levator scapulae muscle
Brachial plexus
Subclavian artery and vein
Serratus anterior muscle
Superior thoracic artery
Scapula (retracted)
Intercostobrachial nerve
Subscapularis muscle
External intercostal membrane anterior to internal intercostal muscle
Teres major muscle
Perforating branch of internal thoracic artery and anterior cutaneous branch of intercostal nerve
Lateral thoracic artery
External intercostal muscle
Long thoracic nerve
Lateral cutaneous branches of intercostal nerves and arteries
Serratus anterior muscle

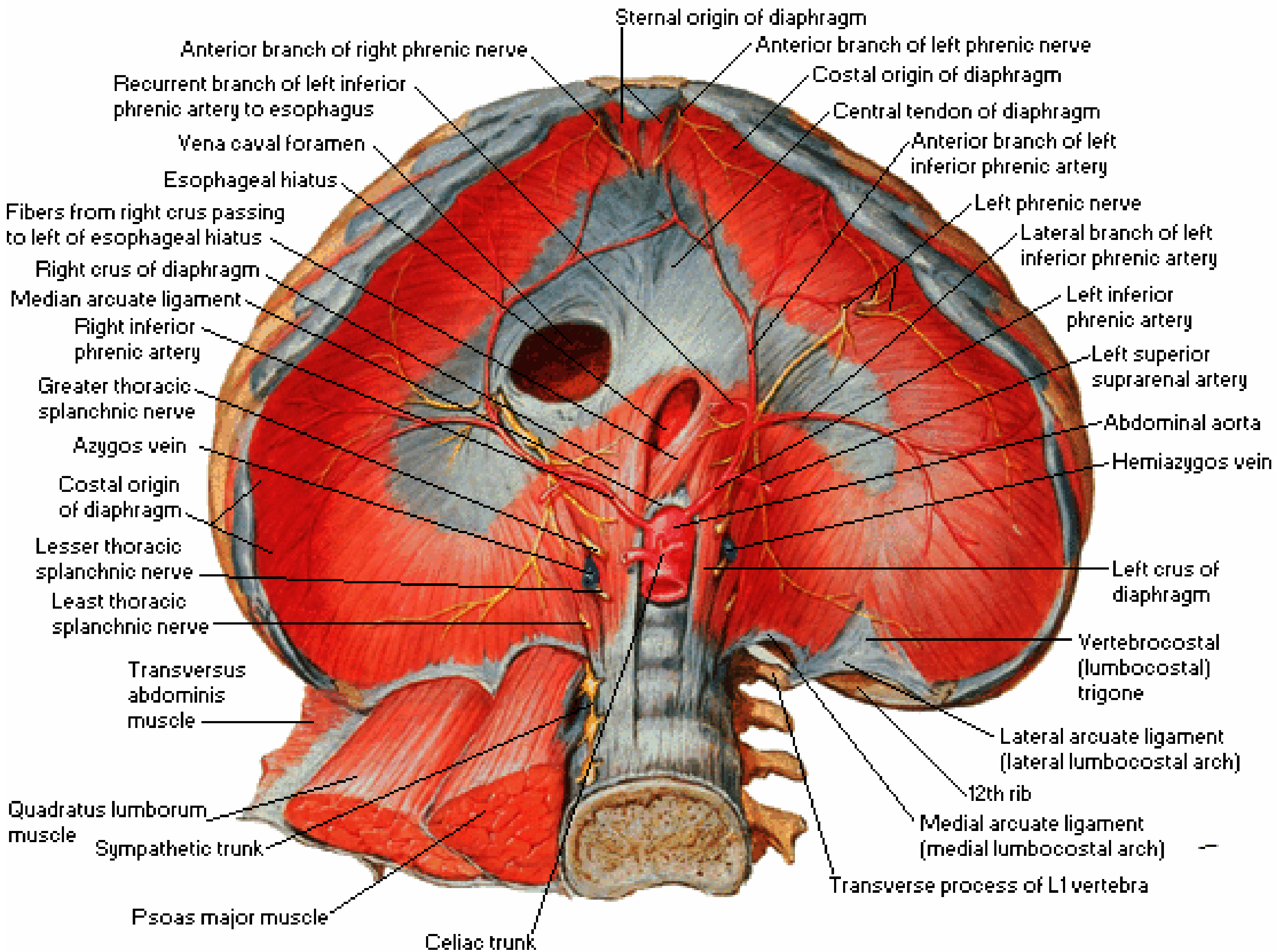

Superior nuchal line
External occipital protuberance
Posterior (lateral) triangle of neck
Sternocleidomastoid muscle
Trapezius muscle
Spine of scapula
Infraspinatus fascia
Deltoid muscle
Left teres minor muscle
Left teres major muscle
Latissimus dorsi muscle
External abdominal oblique muscle
Lumbar triangle (of Petit) with internal abdominal oblique muscle in its floor
Iliac crest
Lateral cutaneous branches of dorsal rami of thoracic spinal nerves
Medial cutaneous branches of dorsal rami of thoracic spinal nerves
Splenius capitis muscle
Accessory nerve (XI)
Levator scapulae muscle
Rhomboideus minor muscle
Rhomboideus major muscle
Supraspinatus muscle
Acromion of scapula
Spine of scapula
Infraspinatus muscle
Right teres minor muscle
Right teres major muscle
Spinous processes of thoracic vertebrae
Latissimus dorsi muscle (cut)
Lower digitations of serratus anterior muscle
Digitations of external abdominal oblique muscle
Serratus posterior inferior muscle
Thoracolumbar fascia over long muscles of back (erector spinae)

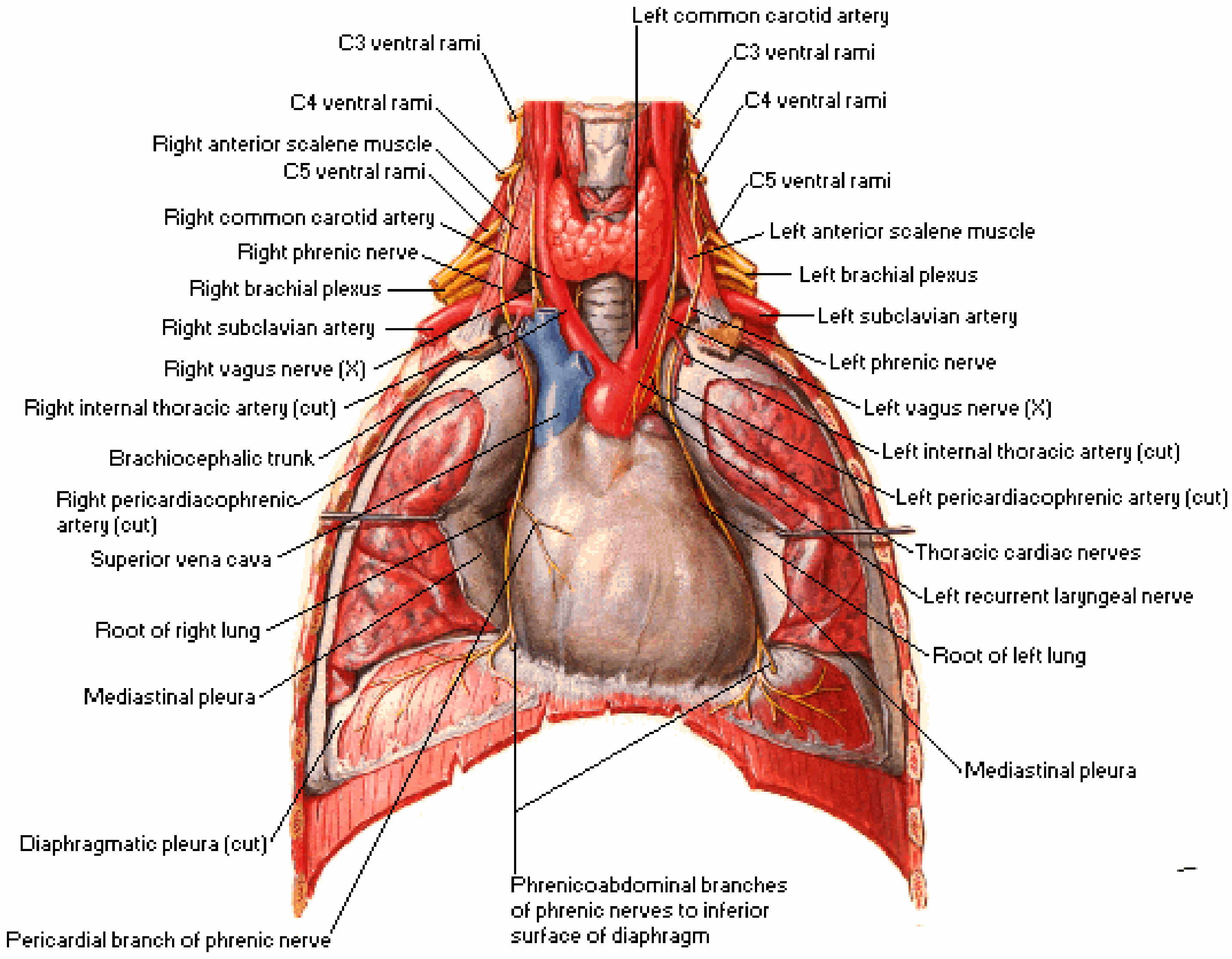

Medial branch of dorsal ramus of thoracic nerve
Lateral branch of dorsal ramus of thoracic nerve
Dorsal ramus of thoracic nerve
Costotransverse ligament
Right serratus anterior muscle
Internal intercostal membrane
Intercostal nerve (ventral ramus of thoracic nerve)
Right erector spinae muscle
Trapezius muscle
Rhomboideus major muscle
Left erector spinae muscle
Scapula
Infraspinatus muscle
Subscapularis muscle
Left serratus anterior muscle
Internal intercosta membrane
Left posterior intercosta artery
Spinal ganglion
Ventral root
Gray and white rami communicantes
Sympathetic trunk and ganglia
Aorta
Dorsal branch of posterior intercostal artery
Spinal (radicular) branch
Left innermost intercostal
Right posterior intercostal arteries (cut)
Right innermost intercostal muscle
Right internal intercostal
Right external intercostal muscle
Lateral cutaneous branch of posterior intercostal artery
Left internal intercostal muscle
Left external intercostal muscle
Lateral cutaneous branch of intercostal nerve
Transversus thoracis muscle
Internal thoracic artery
Anterior intercostal arteries
Anterior branch of lateral cutaneous branch of intercostal nerve
External abdominal oblique muscle
External abdomina oblique muscle
External intercosta membrar
Pectoralis major muscle
Anterior cutaneous branch of intercostal nerve
Sternum
Rectus abdominis muscle
Perforating branch of internal thoracic artery
Superior epigastric artery

Thoracic Surface



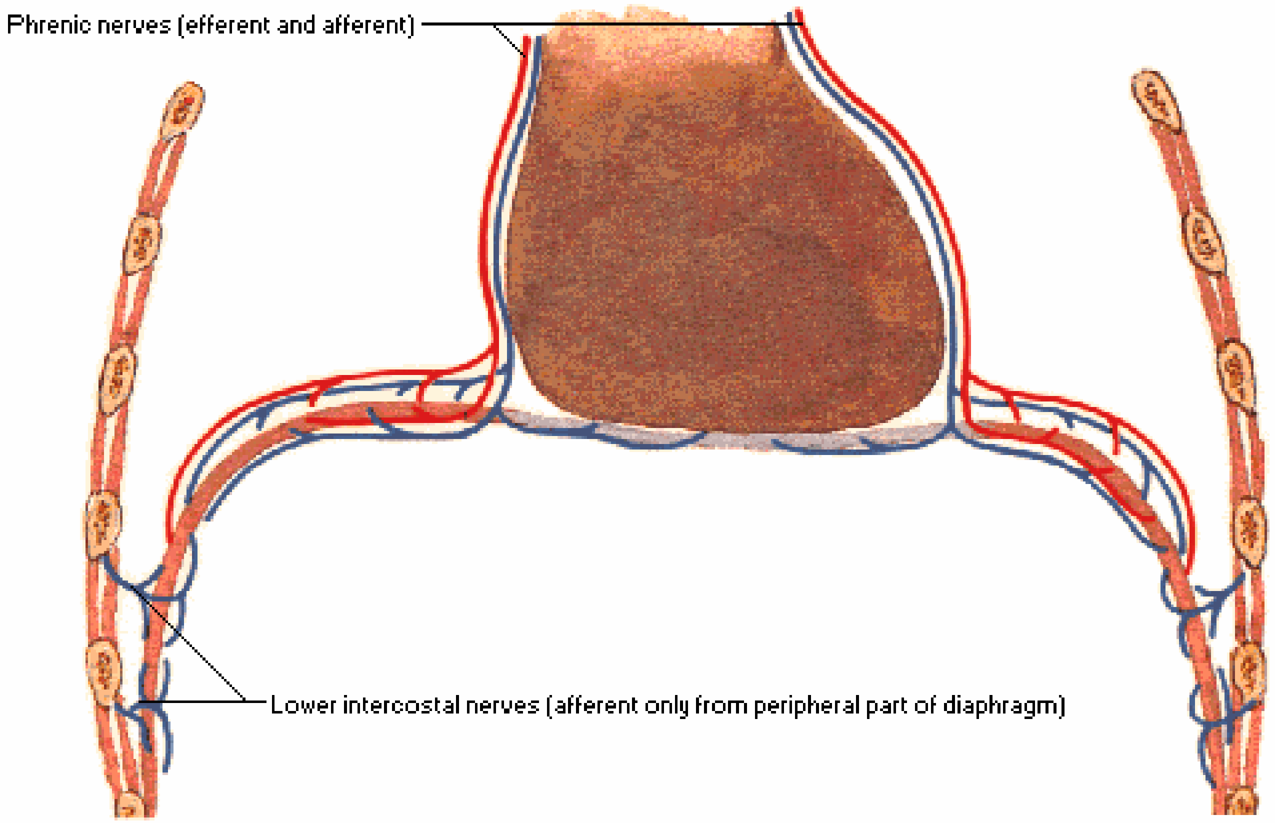
Abdominal Surface



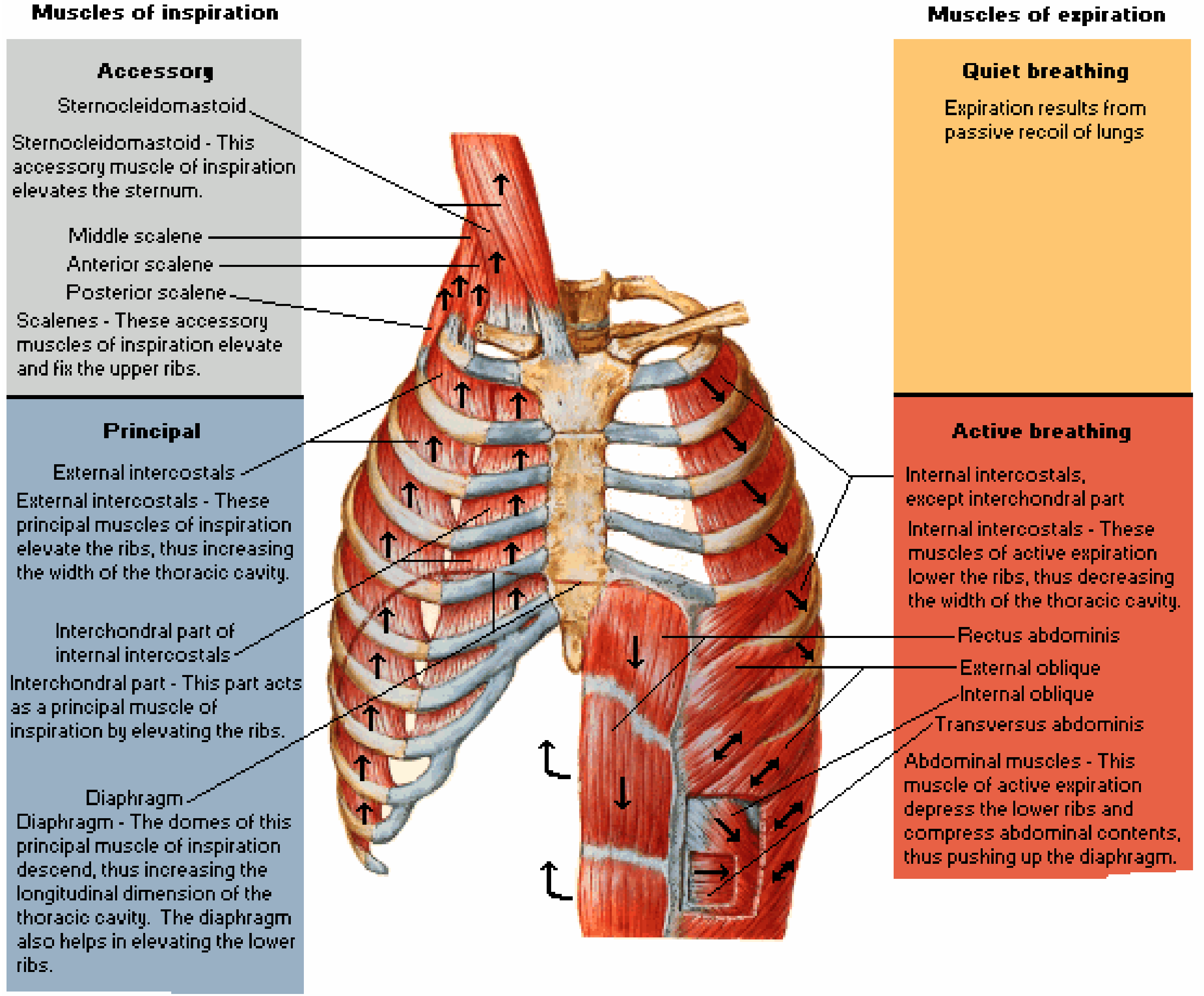


Left common carotid artery
C3 ventral rami
C3 ventral rami
C4 ventral rami
C4 ventral rami
Right anterior scalene muscle
C5 ventral rami
C5 ventral rami
Right common carotid artery
Left anterior scalene muscle
Right phrenic nerve
Right brachial plexus
Left brachial plexus
Right subclavian artery
Left subclavian artery
Left phrenic nerve
Right vagus nerve (X)
Right internal thoracic artery (cut)
Left vagus nerve (X)
Left internal thoracic artery (cut)
Brachiocephalic trunk
Right pericardiacophrenic artery (cut)
Left pericardiacophrenic artery (cut)
Superior vena cava
Thoracic cardiac nerves
Left recurrent laryngeal nerve
Root of right lung
Root of left lung
Mediastinal pleura
Mediastinal pleura
Diaphragmatic pleura (cut)
Phrenicoabdominal branches of phrenic nerves to inferior surface of diaphragm
Pericardial branch of phrenic nerve

Schema

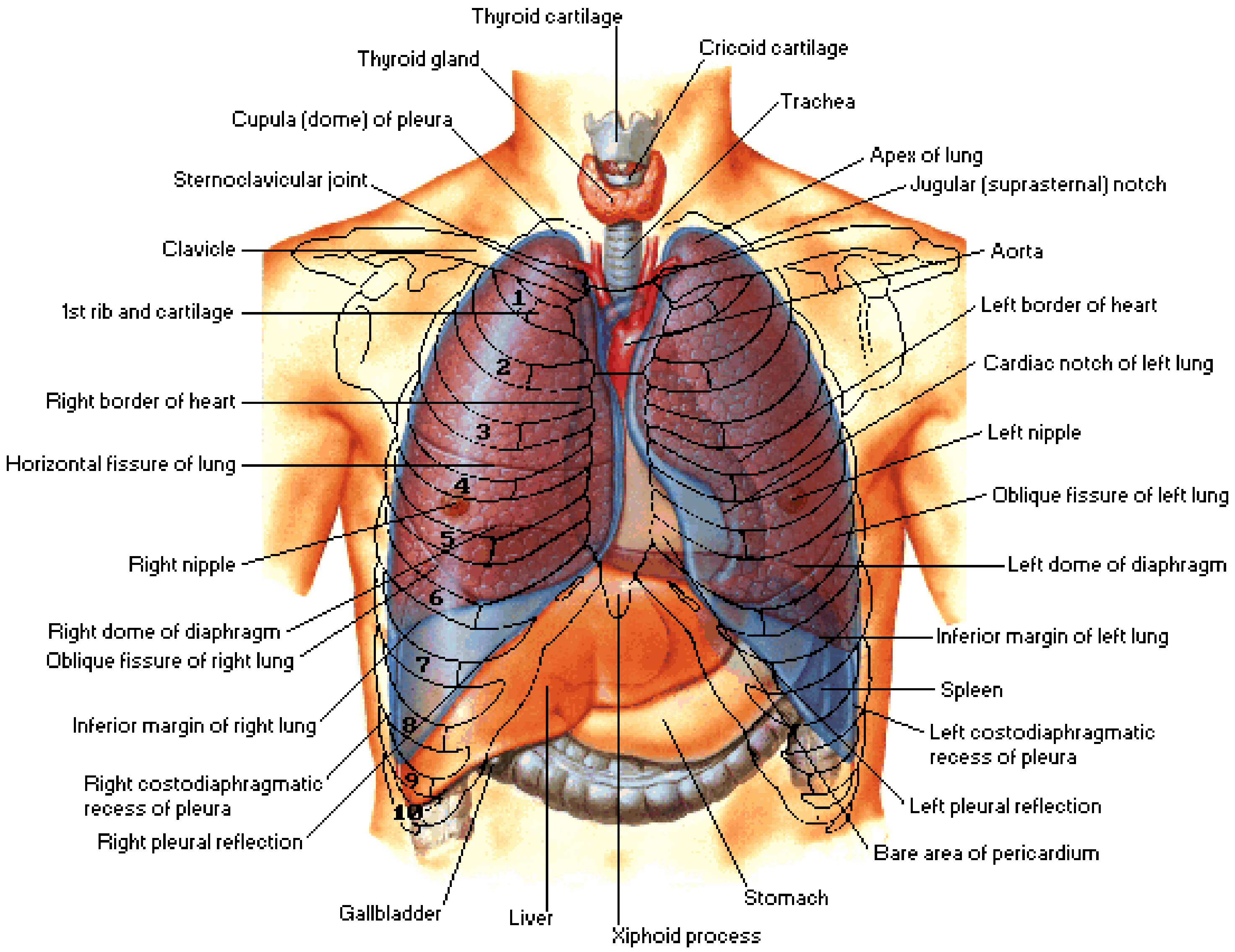


Phrenic nerves (efferent and afferent)
Lower intercostal nerves (afferent only from peripheral part of diaphragm)

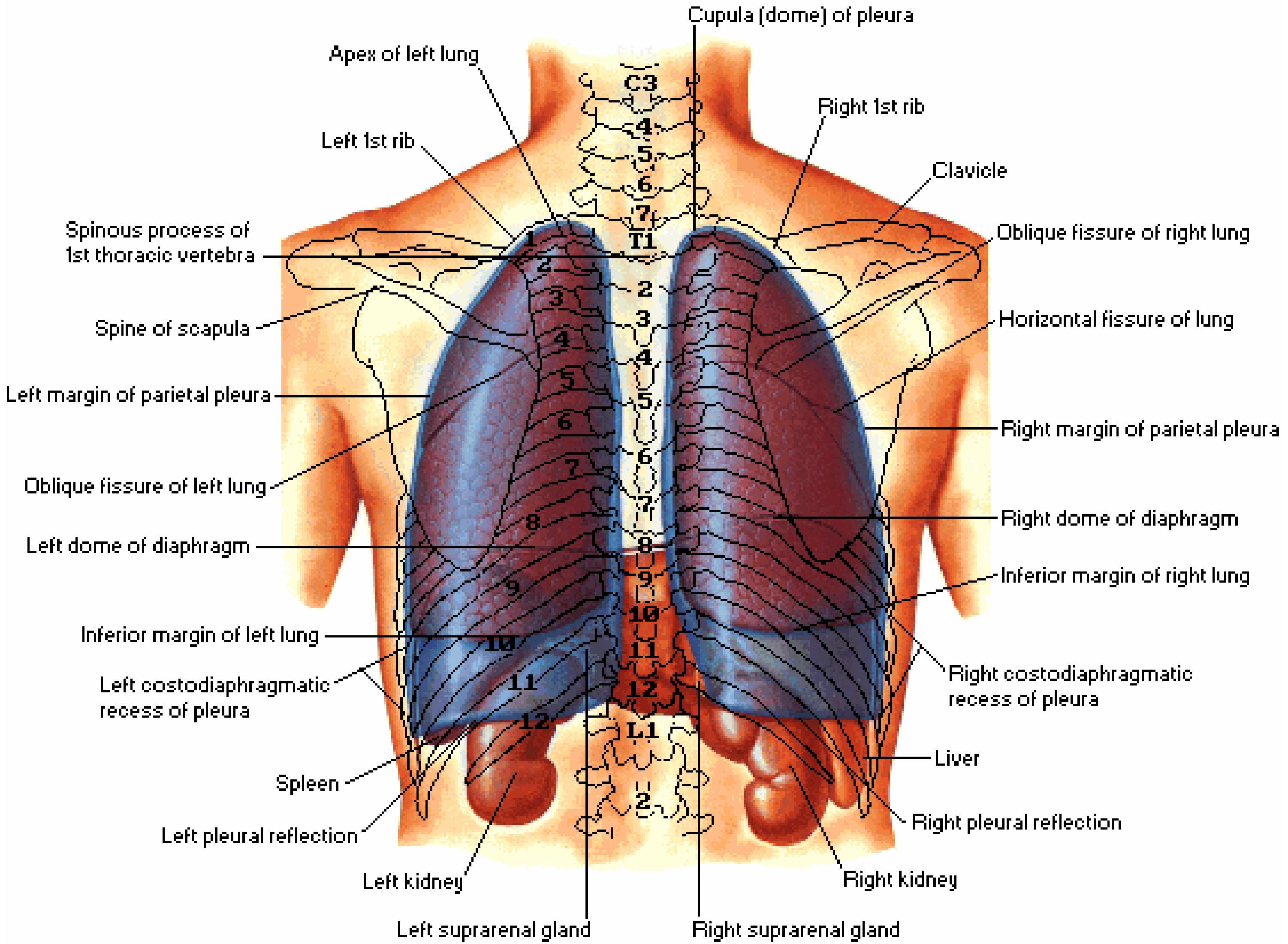


Muscles of inspiration
Muscles of expiration
Accessory
Sternocleidomastoid
Sternocleidomastoid - This accessory muscle of inspiration elevates the sternum.
Middle scalene
Anterior scalene
Posterior scalene
Scalenes - These accessory muscles of inspiration elevate and fix the upper ribs.
Principal
External intercostals
External intercostals - These principal muscles of inspiration elevate the ribs, thus increasing the width of the thoracic cavity.
Interchondral part of internal intercostals
Interchondral part - This part acts as a principal muscle of inspiration by elevating the ribs.
Diaphragm
Diaphragm - The domes of this principal muscle of inspiration descend, thus increasing the longitudinal dimension of the thoracic cavity. The diaphragm also helps in elevating the lower ribs.
Quiet breathing
Expiration results from passive recoil of lungs
Active breathing
Internal intercostals, except interchondral part
Internal intercostals - These muscles of active expiration lower the ribs, thus decreasing the width of the thoracic cavity.
Rectus abdominis
External oblique
Internal oblique
Transversus abdominis
Abdominal muscles - This muscle of active expiration depress the lower ribs and compress abdominal contents, thus pushing up the diaphragm.

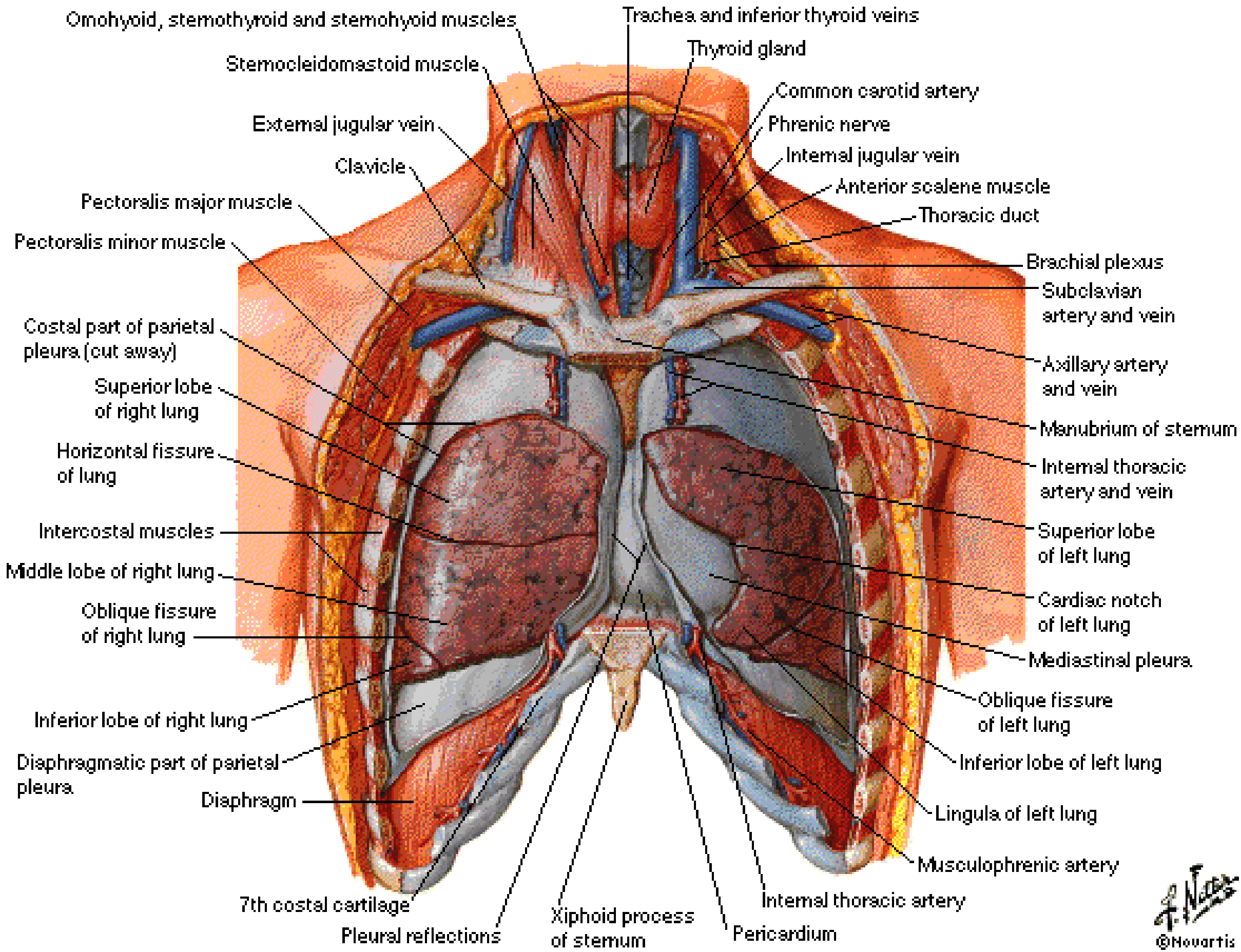
Anterior View



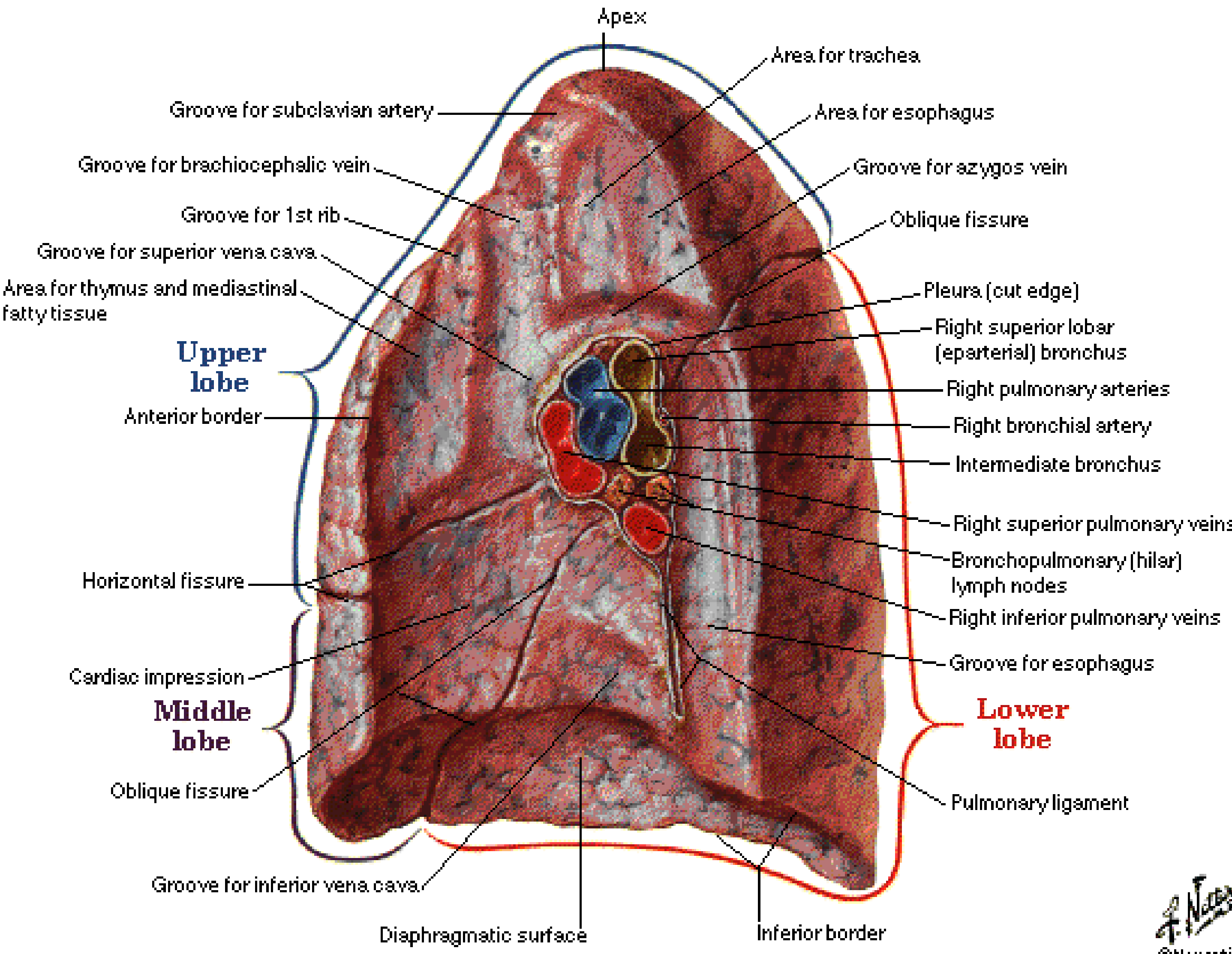
Posterior View



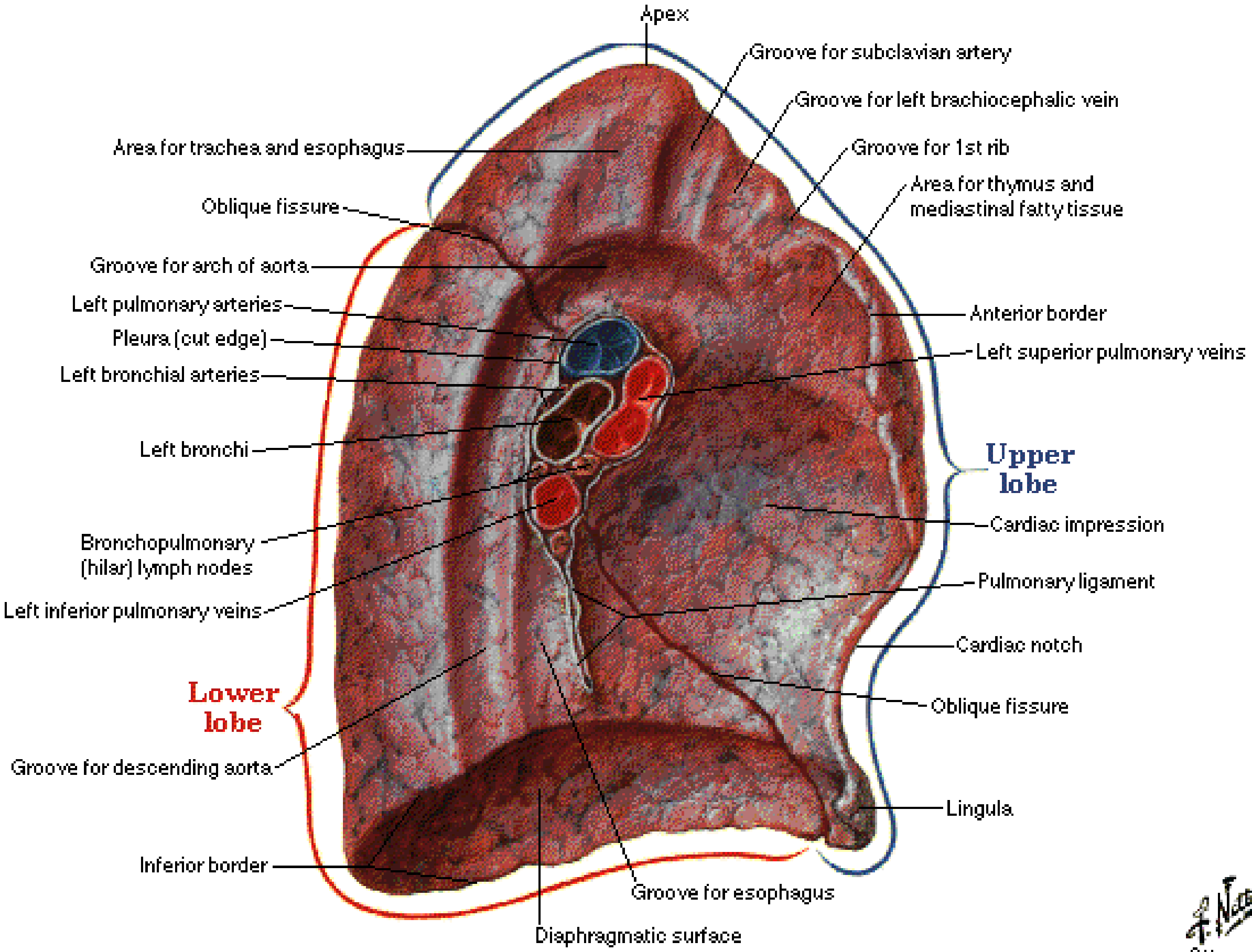
Lungs in Situ
Anterior View



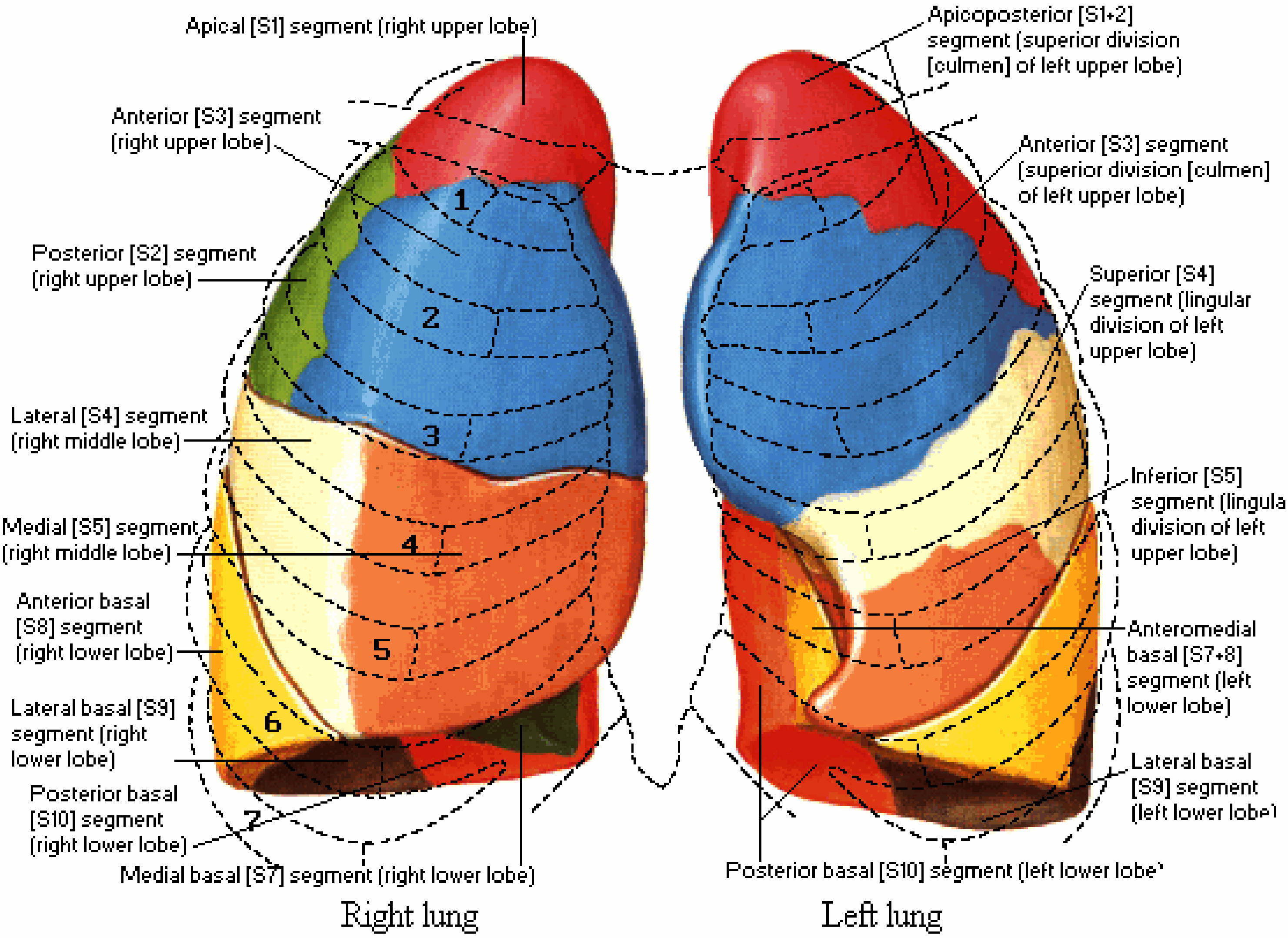
Right Lung
Medial View



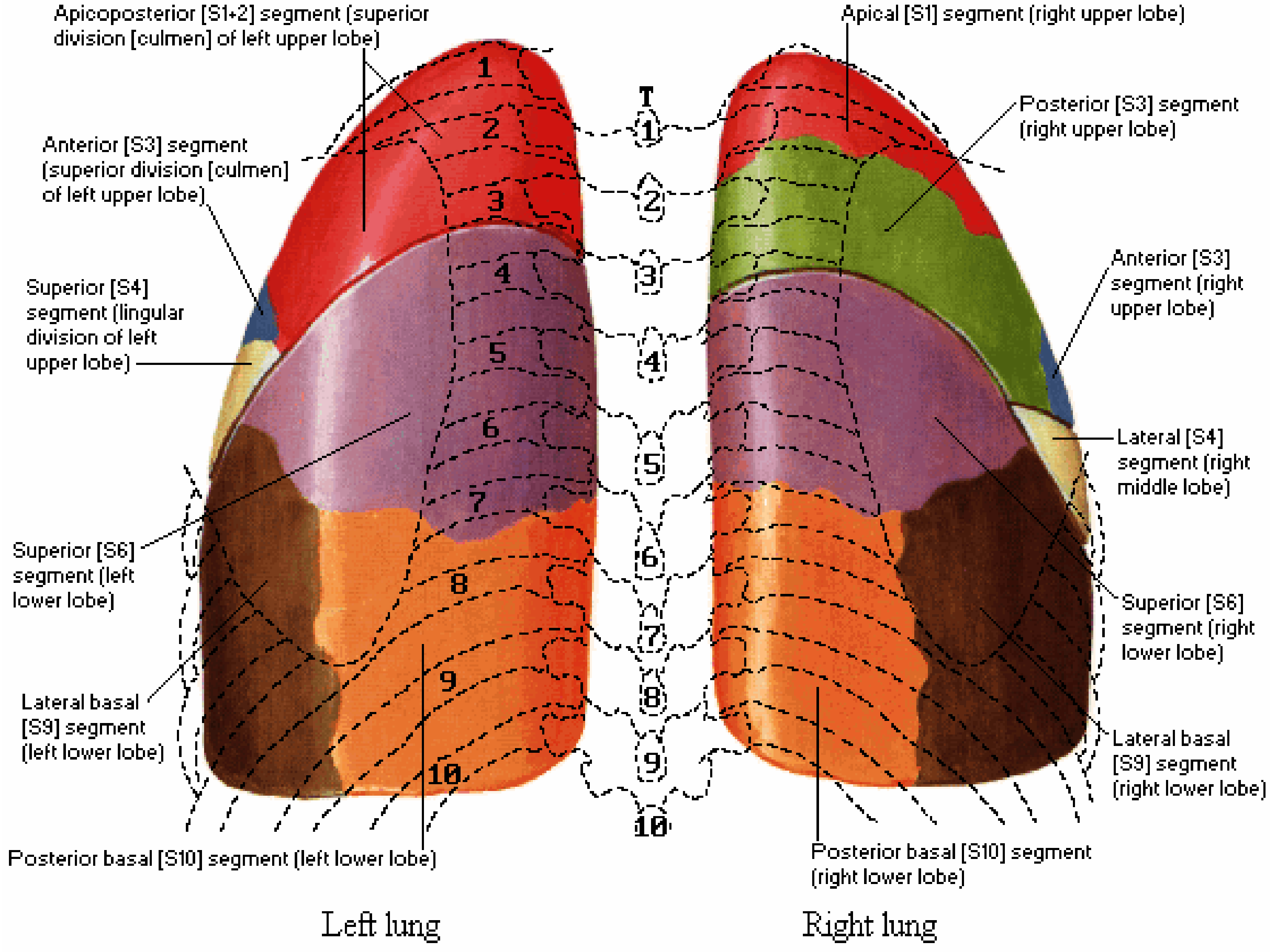
Left Lung
Medial View



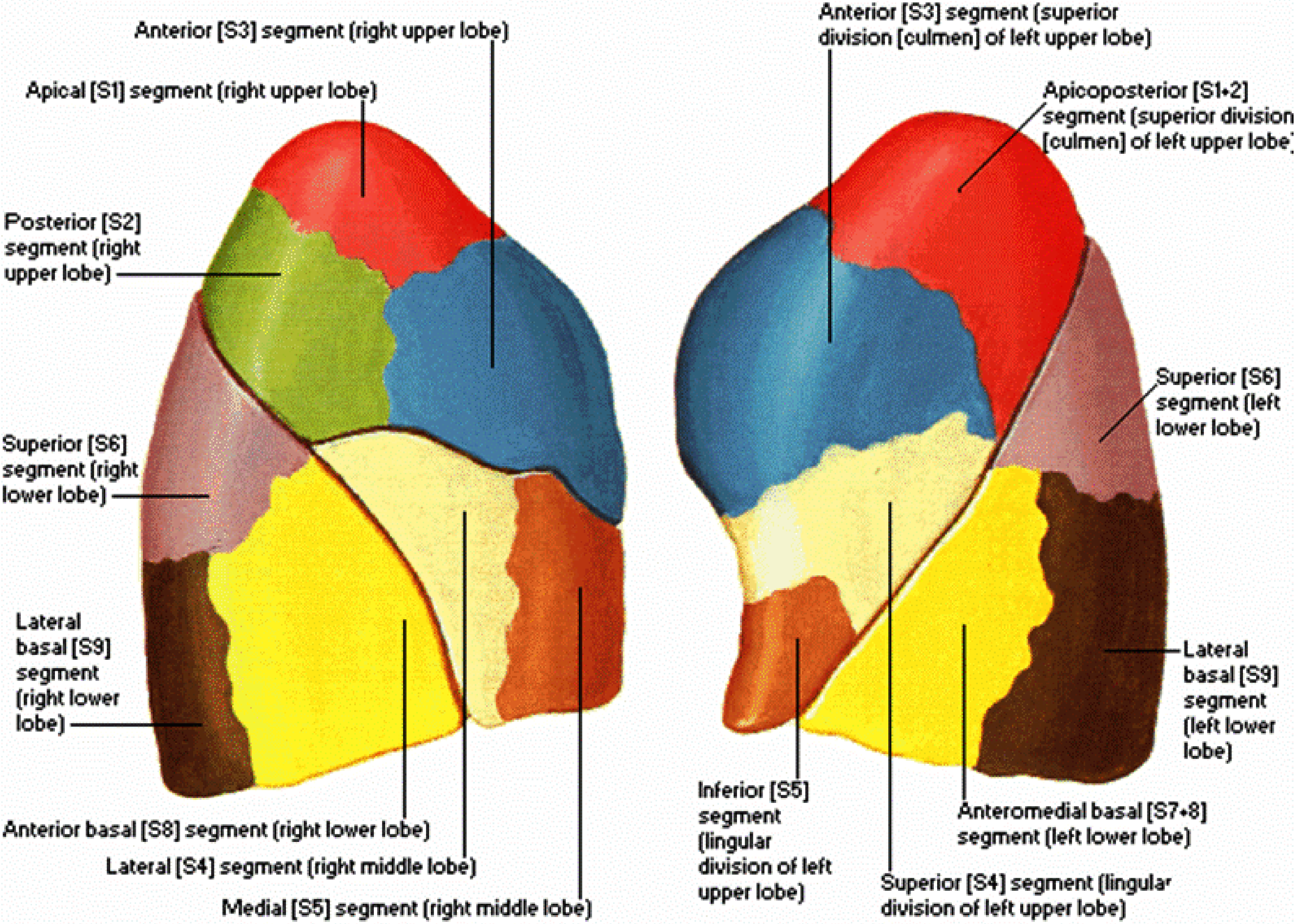
Anterior View



Posterior View



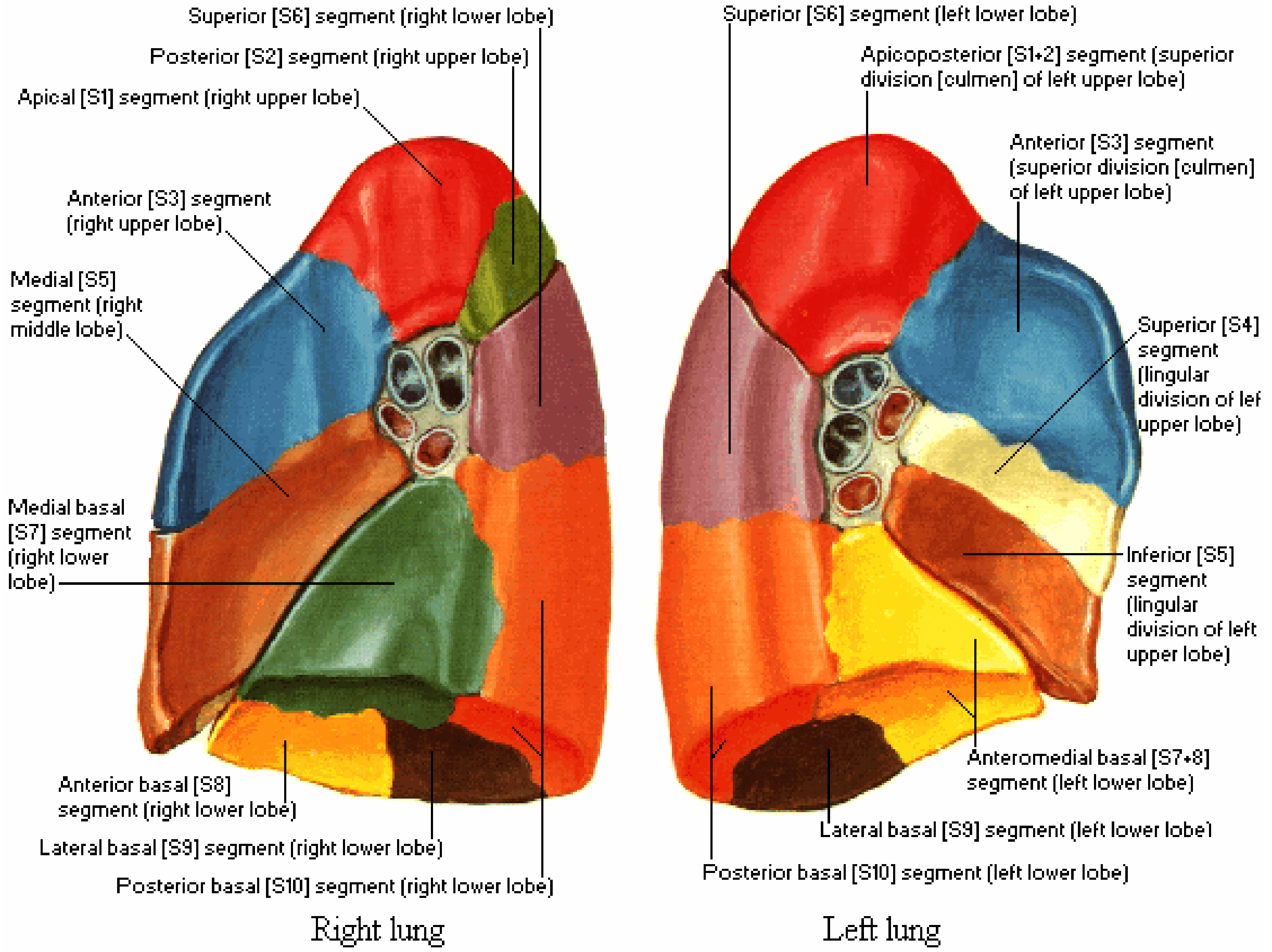
Lateral Views



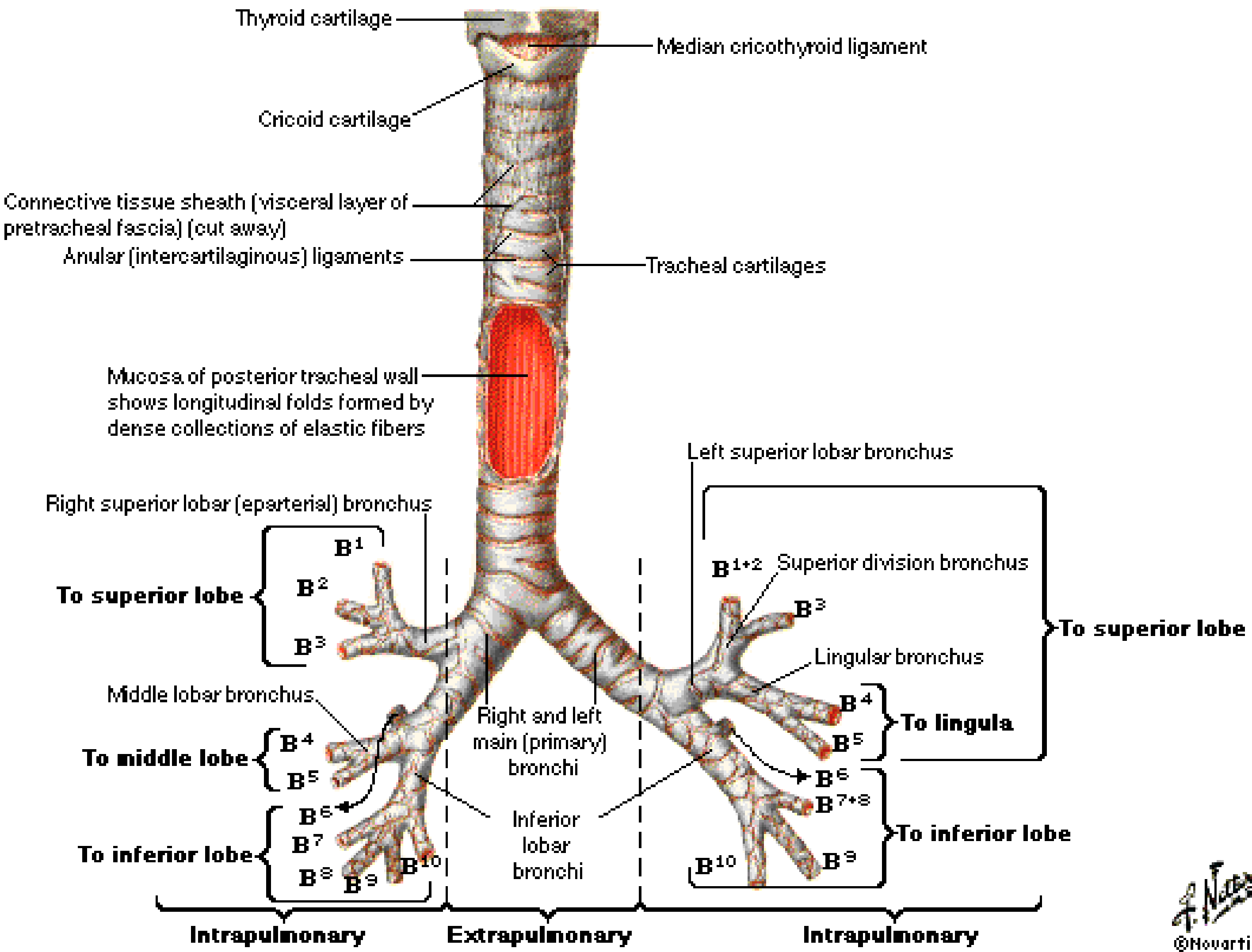
Right lung

Left lung

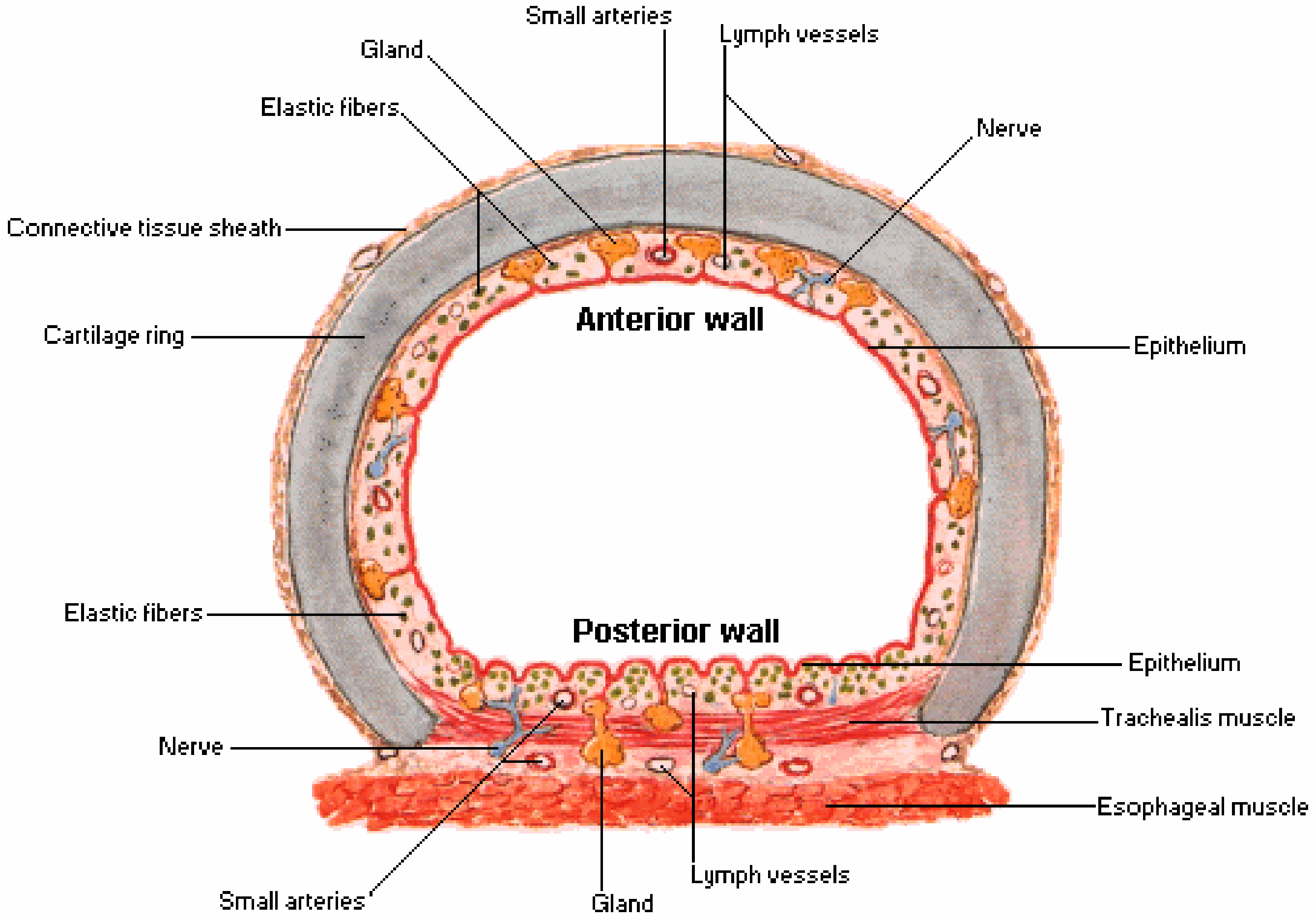
Medial Views



Trachea and Major Bronchi
Anterior View



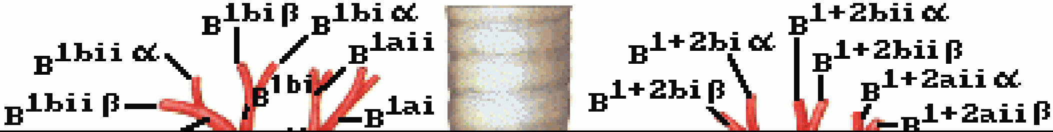
Cross Section



Text

Nomenclature of Bronchi

Schema



Nomenclature in common usage for bronchopulmonary segments (Plates 188A & B and 189A & B) is that of Jackson and Huber, and segmental bronchi are named accordingly. Ikeda proposed nomenclature (as demonstrated here) for bronchial subdivisions as far as 6th generation. For simplification in this illustration, only some bronchial subdivisions are labeled as far as 5th or 6th generation.

Segmental bronchi (B) are numbered from 1 to 10 in each lung, corresponding to pulmonary segments. In left lung, B1 and B2 are combined as are B7 and B8.

Subsegmental, or 4th order, bronchi are indicated by addition of lower case letters a, b, or c when an additional branch is present. Fifth order bronchi are designated by Roman numeral i (anterior) or ii (posterior), and 6th order bronchi by Greek letters α and β.

Several texts use alternate numbers (as proposed by Boyden) for segmental bronchi.

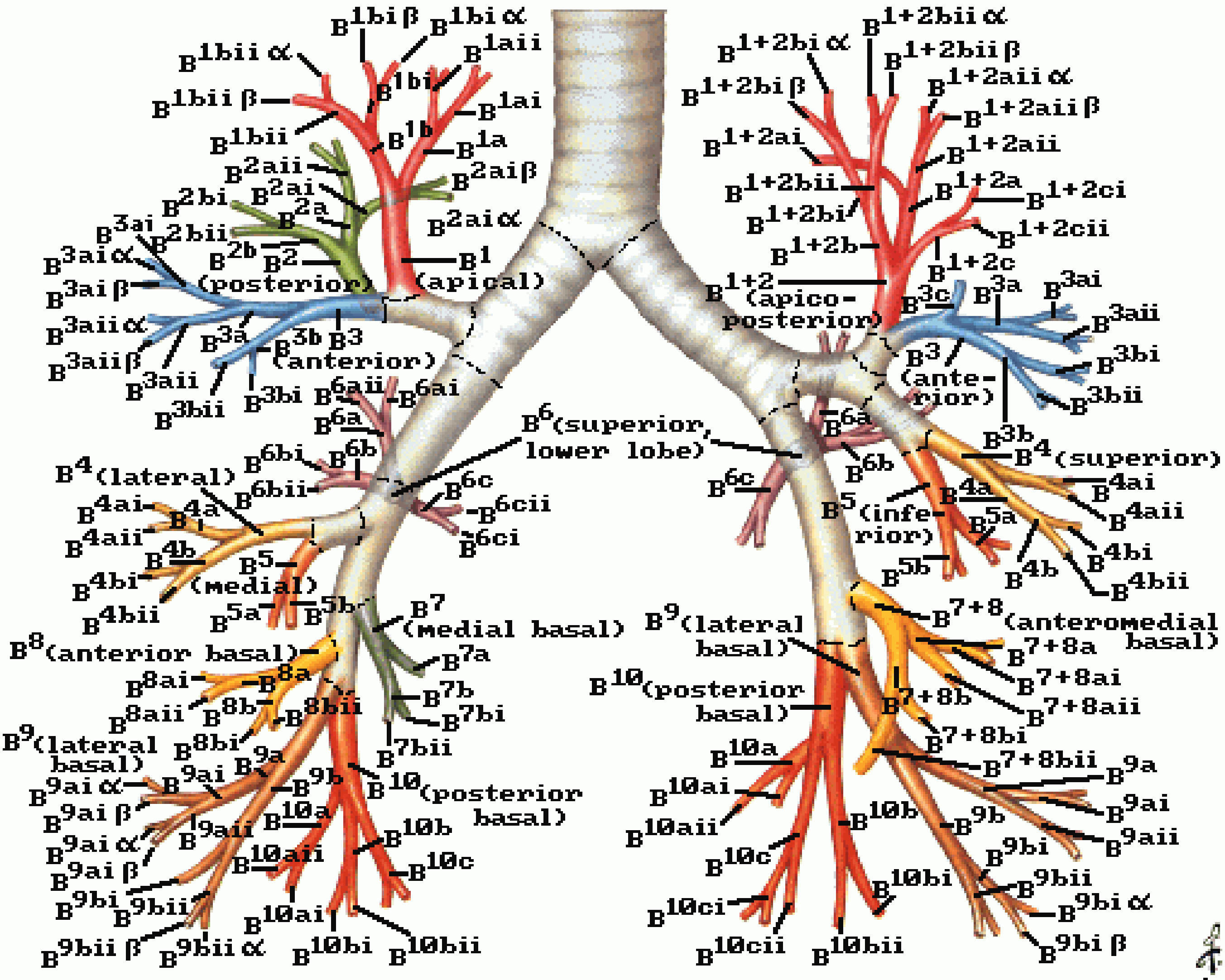
Variations of standard bronchial pattern shown here are common, especially in peripheral airways.



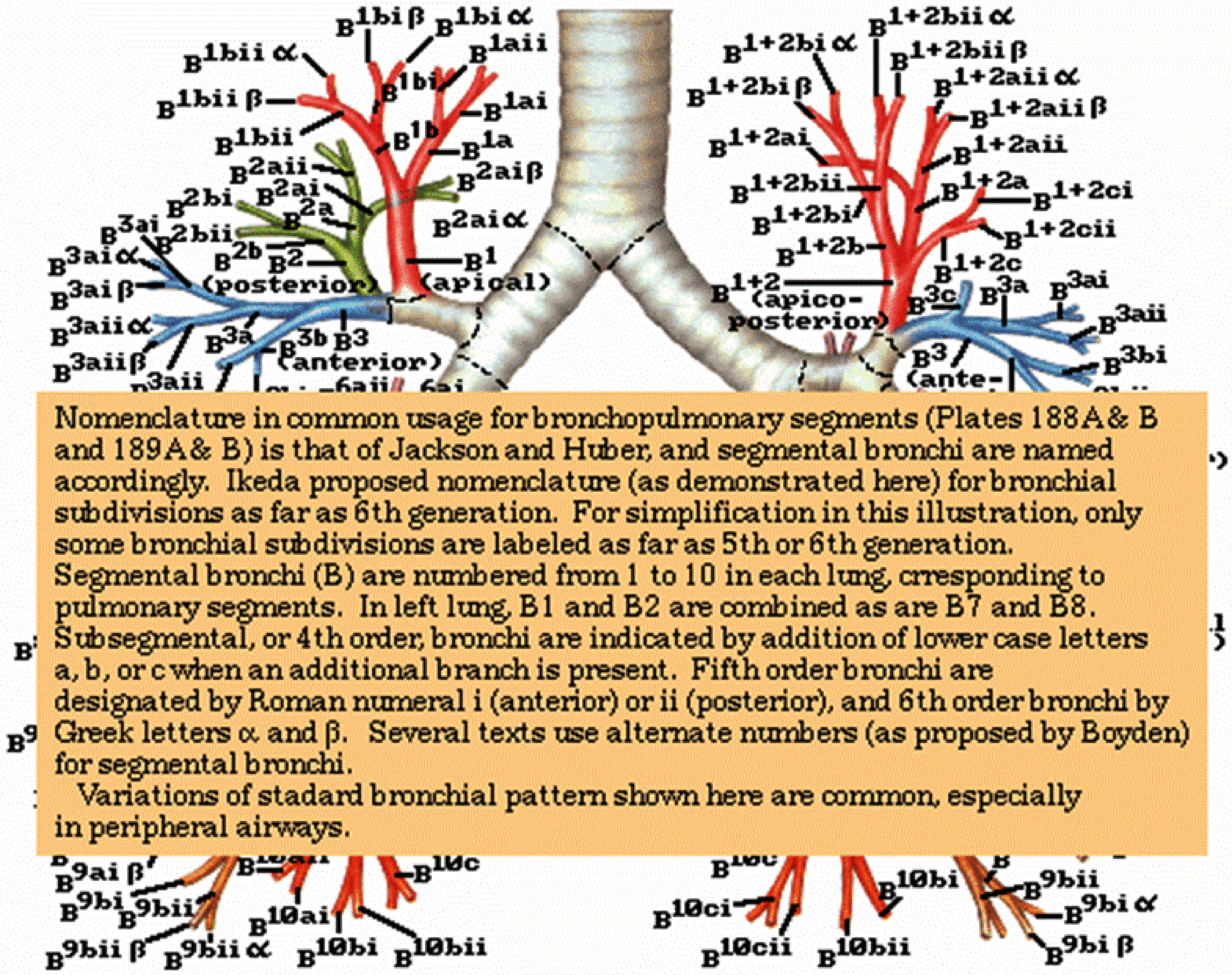
Text

Nomenclature of Bronchi

Schema



Schema

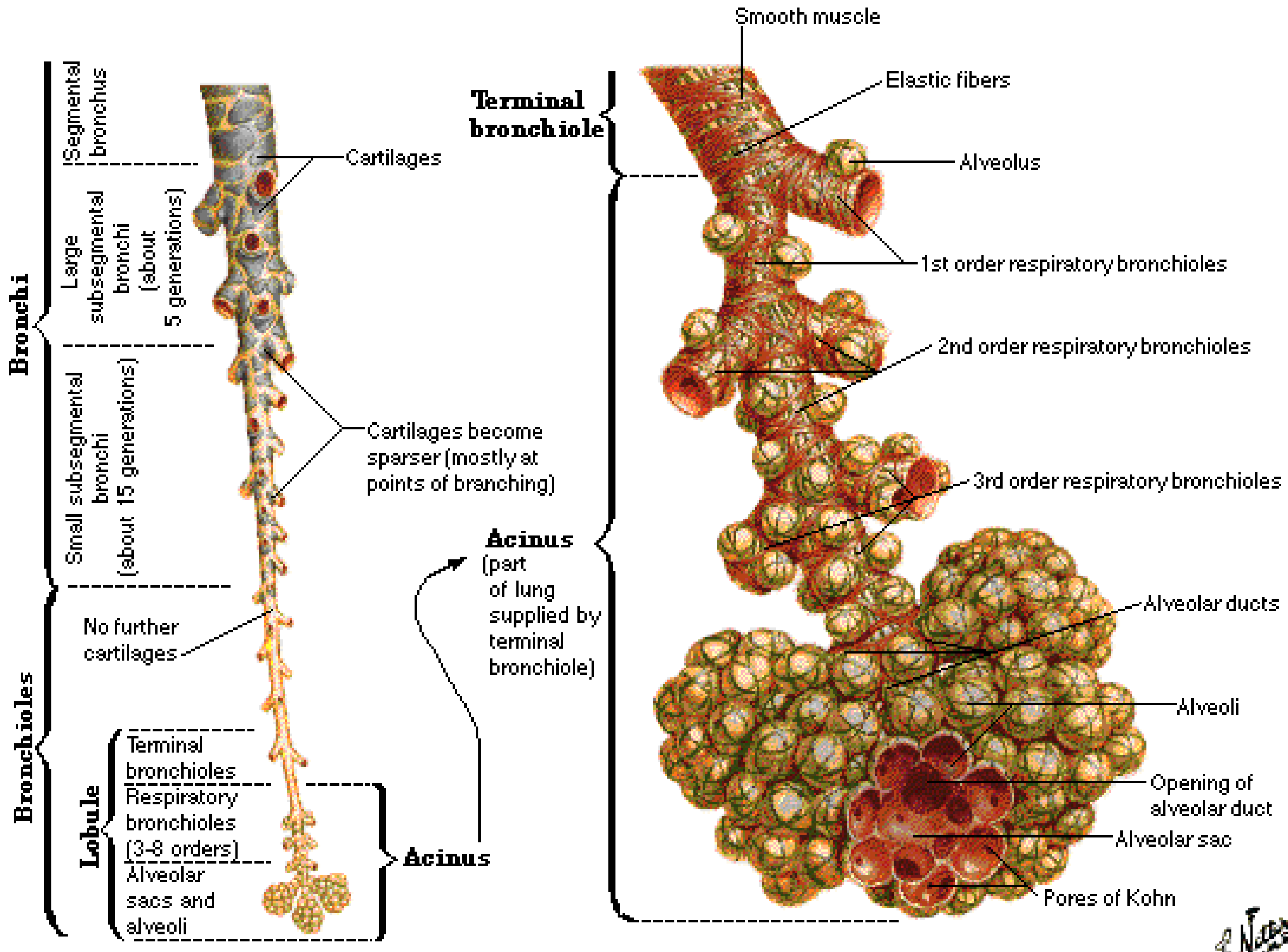


Nomenclature in common usage for bronchopulmonary segments (Plates 188A& B and 189A& B) is that of Jackson and Huber, and segmental bronchi are named accordingly. Ikeda proposed nomenclature (as demonstrated here) for bronchial subdivisions as far as 6th generation. For simplification in this illustration, only some bronchial subdivisions are labeled as far as 5th or 6th generation. Segmental bronchi (B) are numbered from 1 to 10 in each lung, crresponding to pulmonary segments. In left lung, B1 and B2 are combined as are B7 and B8. Subsegmental, or 4th order, bronchi are indicated by addition of lower case letters a, b, or c when an additional branch is present. Fifth order bronchi are designated by Roman numeral i (anterior) or ii (posterior), and 6th order bronchi by Greek letters α and β. Several texts use alternate numbers (as proposed by Boyden) for segmental bronchi.

Variations of stadard bronchial pattern shown here are common, especially in peripheral airways.

Intrapulmonary Airways

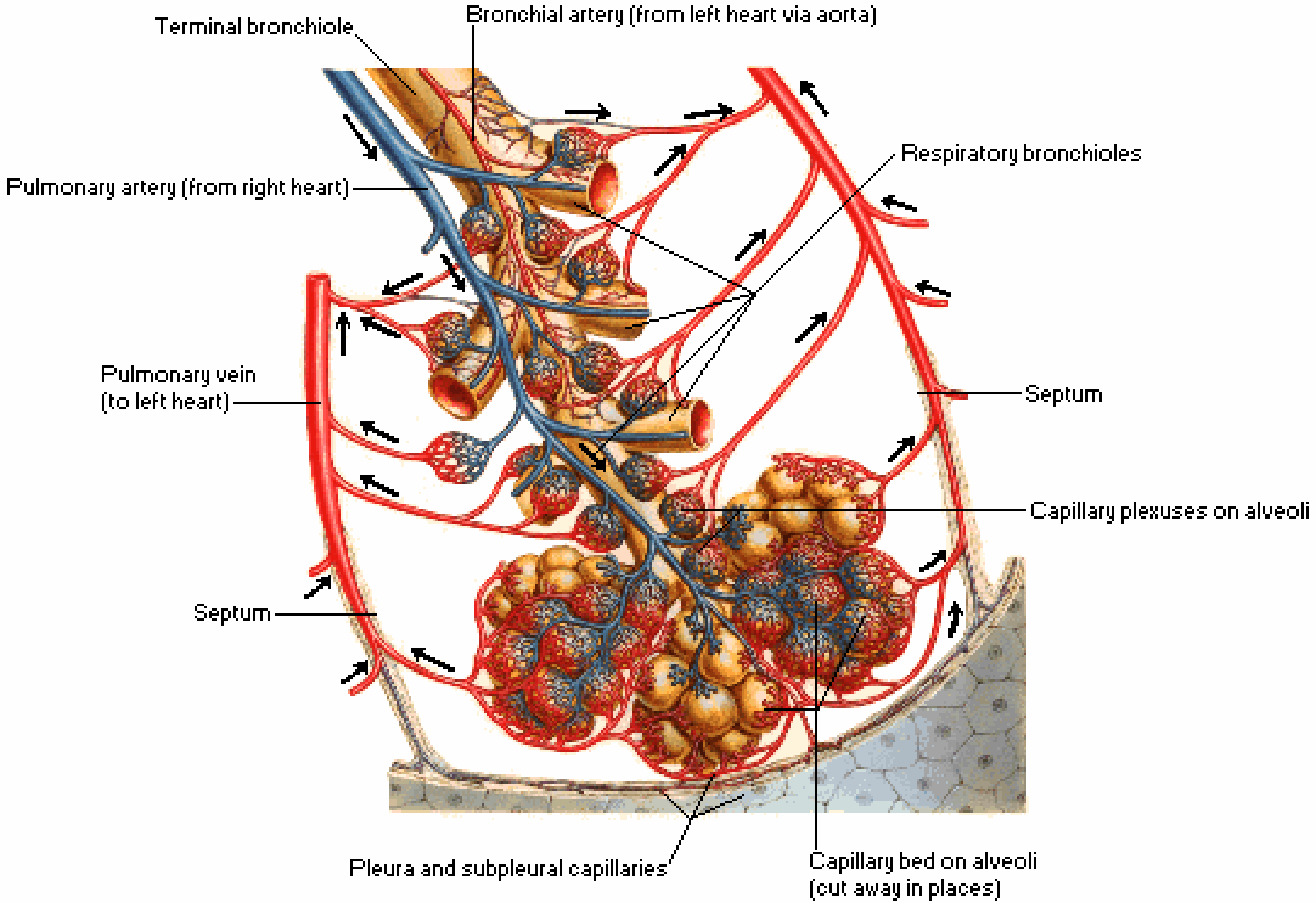
Schema



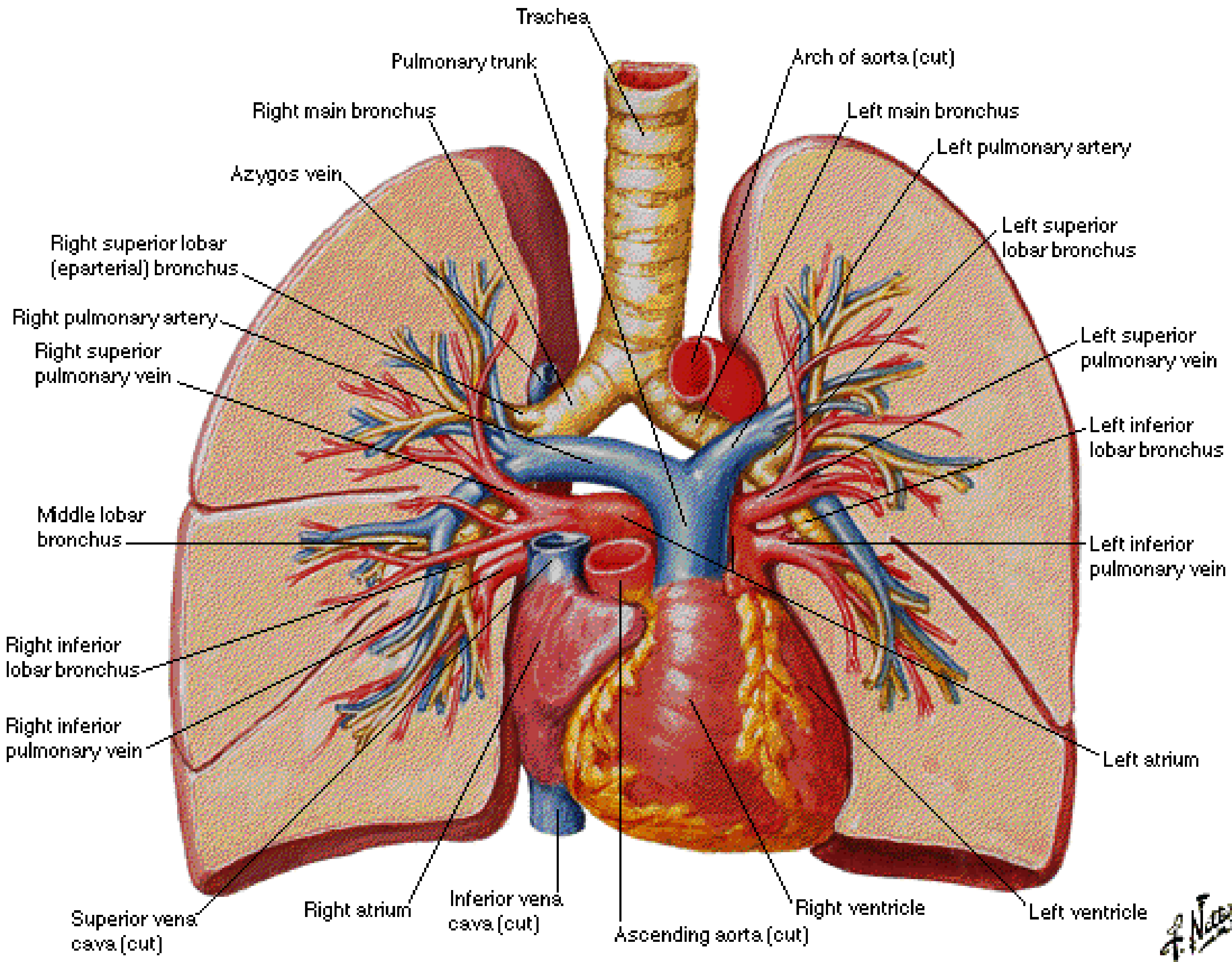
Subdivisions of intrapulmonary airways

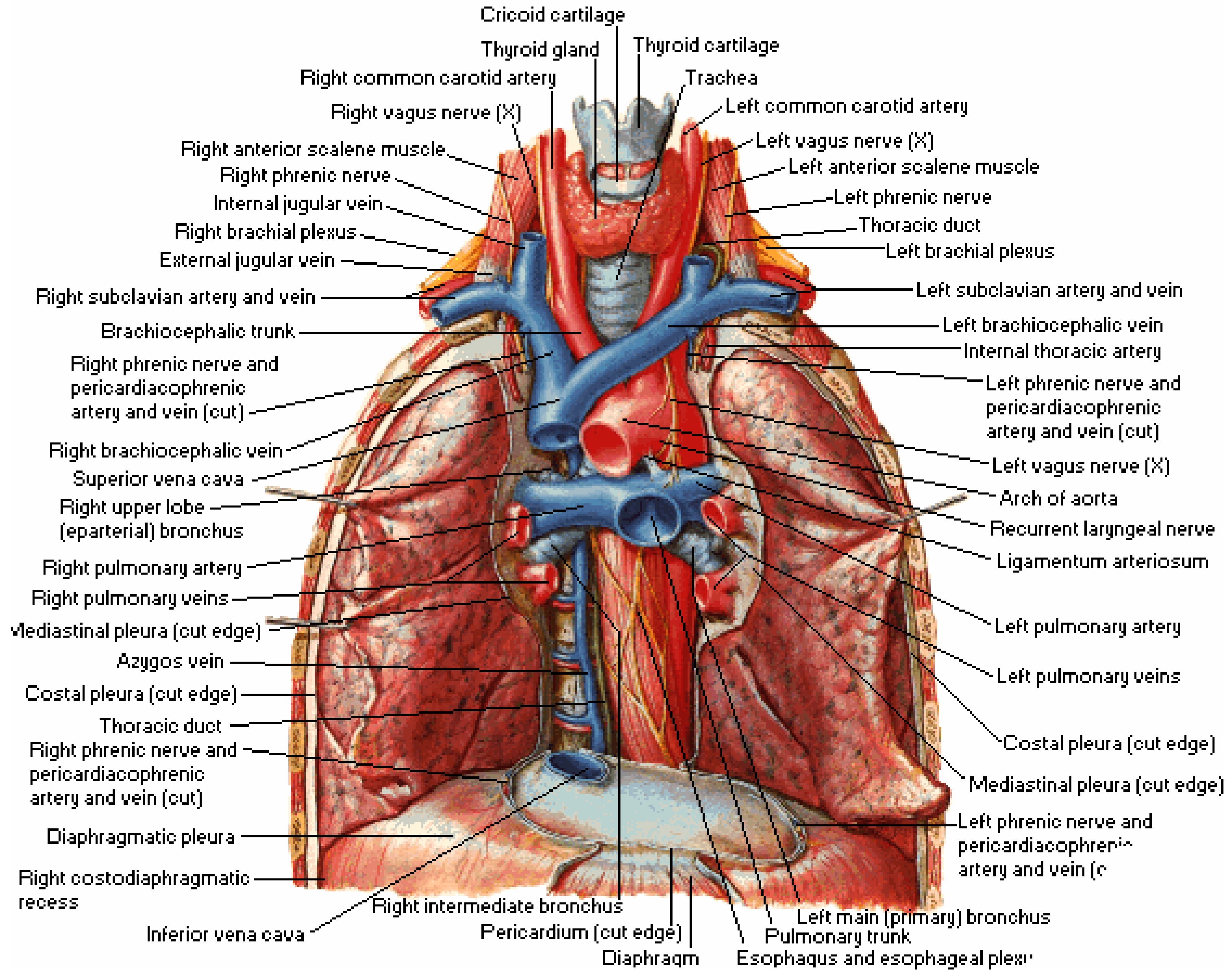
Structure of intrapulmonary airways

Schema

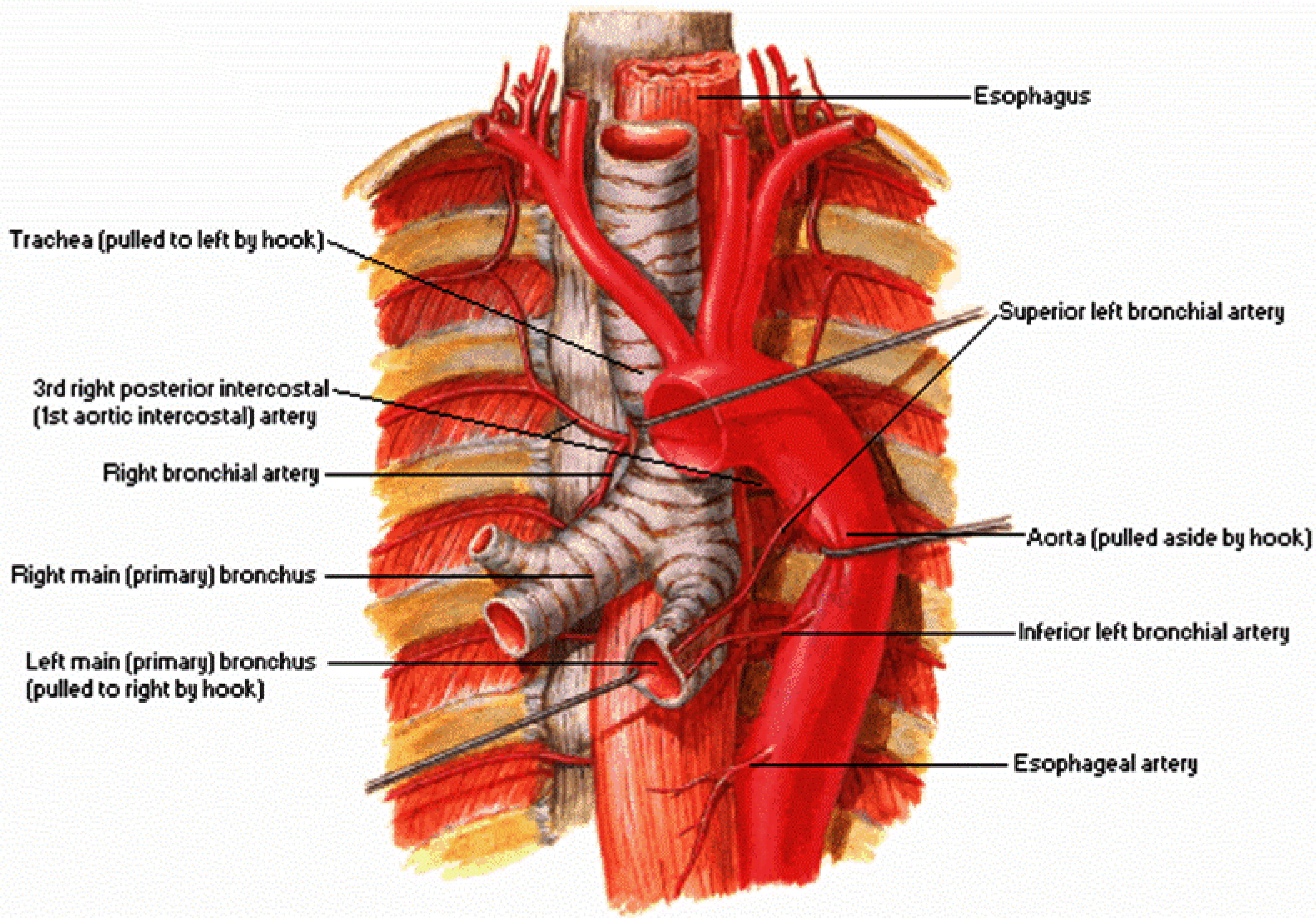

Terminal bronchiole
Bronchial artery (from left heart via aorta)
Respiratory bronchioles
Pulmonary artery (from right heart)
Pulmonary vein
(to left heart)
Septum
Capillary plexuses on alveoli
Septum
Pleura and subpleural capillaries
Capillary bed on alveoli
(cut away in places)

Pulmonary Arteries and Veins



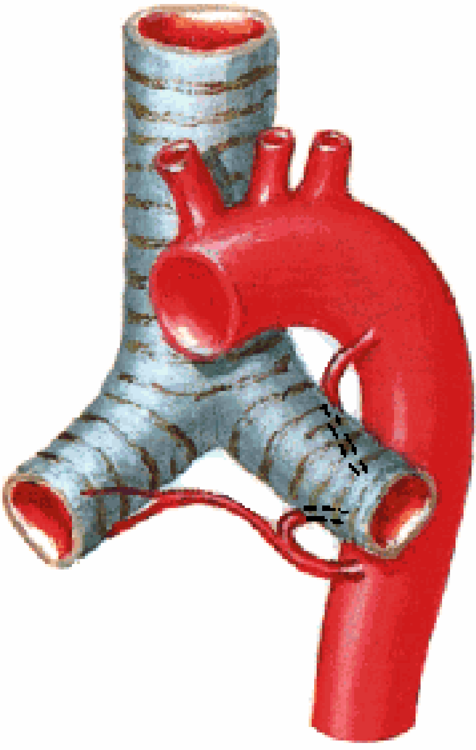


Cricoid cartilage
Thyroid gland
Thyroid cartilage
Right common carotid artery
Trachea
Right vagus nerve (X)
Left common carotid artery
Right anterior scalene muscle
Left vagus nerve (X)
Right phrenic nerve
Left anterior scalene muscle
Internal jugular vein
Left phrenic nerve
Right brachial plexus
Thoracic duct
External jugular vein
Left brachial plexus
Right subclavian artery and vein
Left subclavian artery and vein
Brachiocephalic trunk
Left brachiocephalic vein
Internal thoracic artery
Right phrenic nerve and pericardiacophrenic artery and vein (cut)
Left phrenic nerve and pericardiacophrenic artery and vein (cut)
Right brachiocephalic vein
Left vagus nerve (X)
Superior vena cava
Arch of aorta
Right upper lobe (eparterial) bronchus
Recurrent laryngeal nerve
Ligamentum arteriosum
Right pulmonary artery
Right pulmonary veins
Left pulmonary artery
Mediastinal pleura (cut edge)
Azygos vein
Left pulmonary veins
Costal pleura (cut edge)
Thoracic duct
Costal pleura (cut edge)
Right phrenic nerve and pericardiacophrenic artery and vein (cut)
Mediastinal pleura (cut edge)
Left phrenic nerve and
Diaphragmatic pleura
Right costodiaphragmatic recess
Right intermediate bronchus
Left main (primary) bronchus
Inferior vena cava
Pericardium (cut edge)
Pulmonary trunk
Diaphragm
Esophagus and esophageal

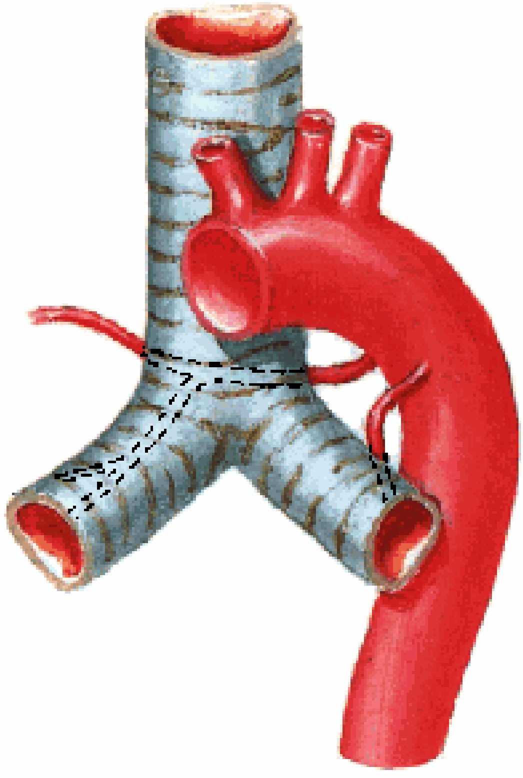


Esophagus
Trachea (pulled to left by hook)
Superior left bronchial artery
3rd right posterior intercostal
(1st aortic intercostal) artery
Right bronchial artery
Aorta (pulled aside by hook)
Right main (primary) bronchus
Inferior left bronchial artery
Left main (primary) bronchus
(pulled to right by hook)
Esophageal artery

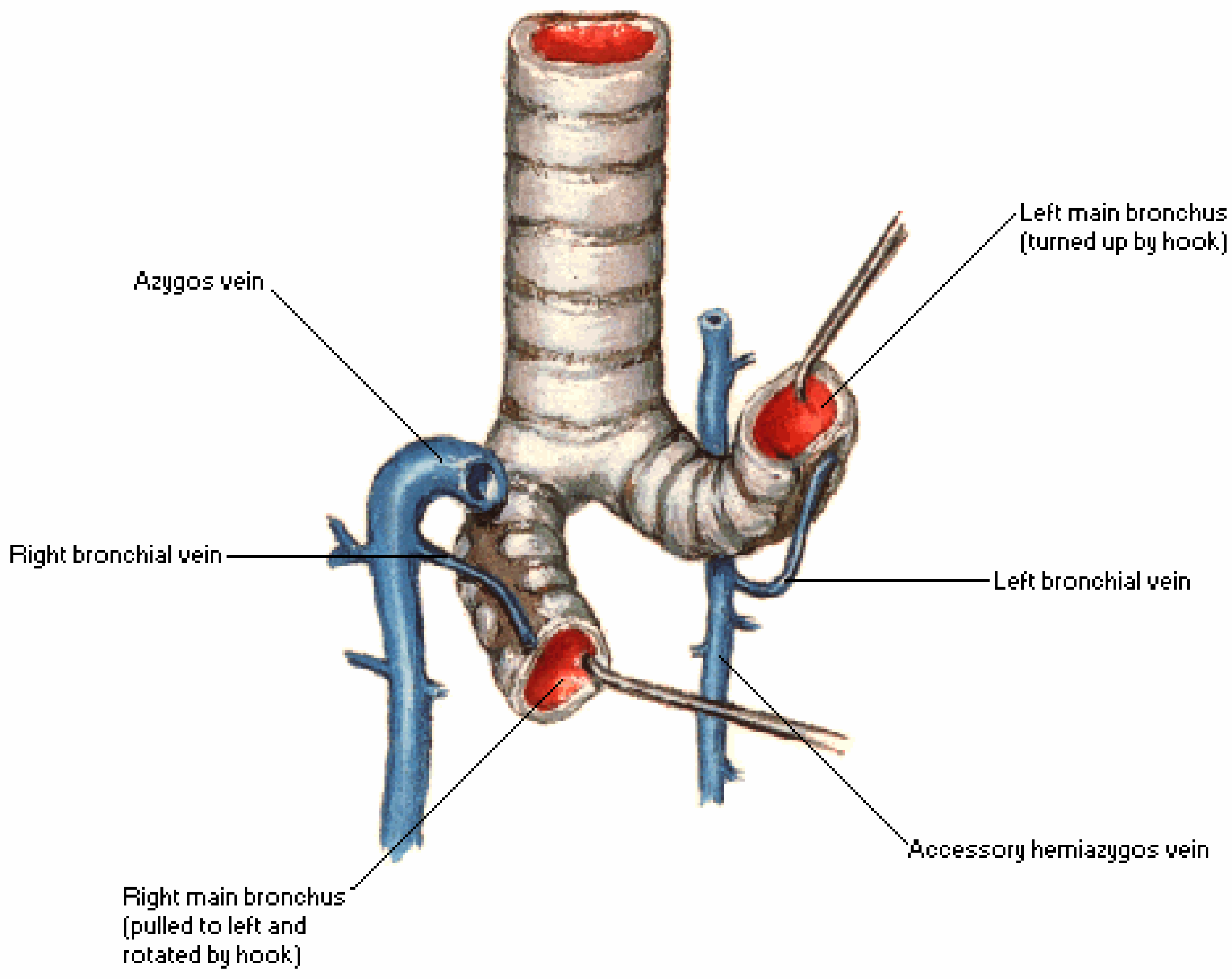
Variations

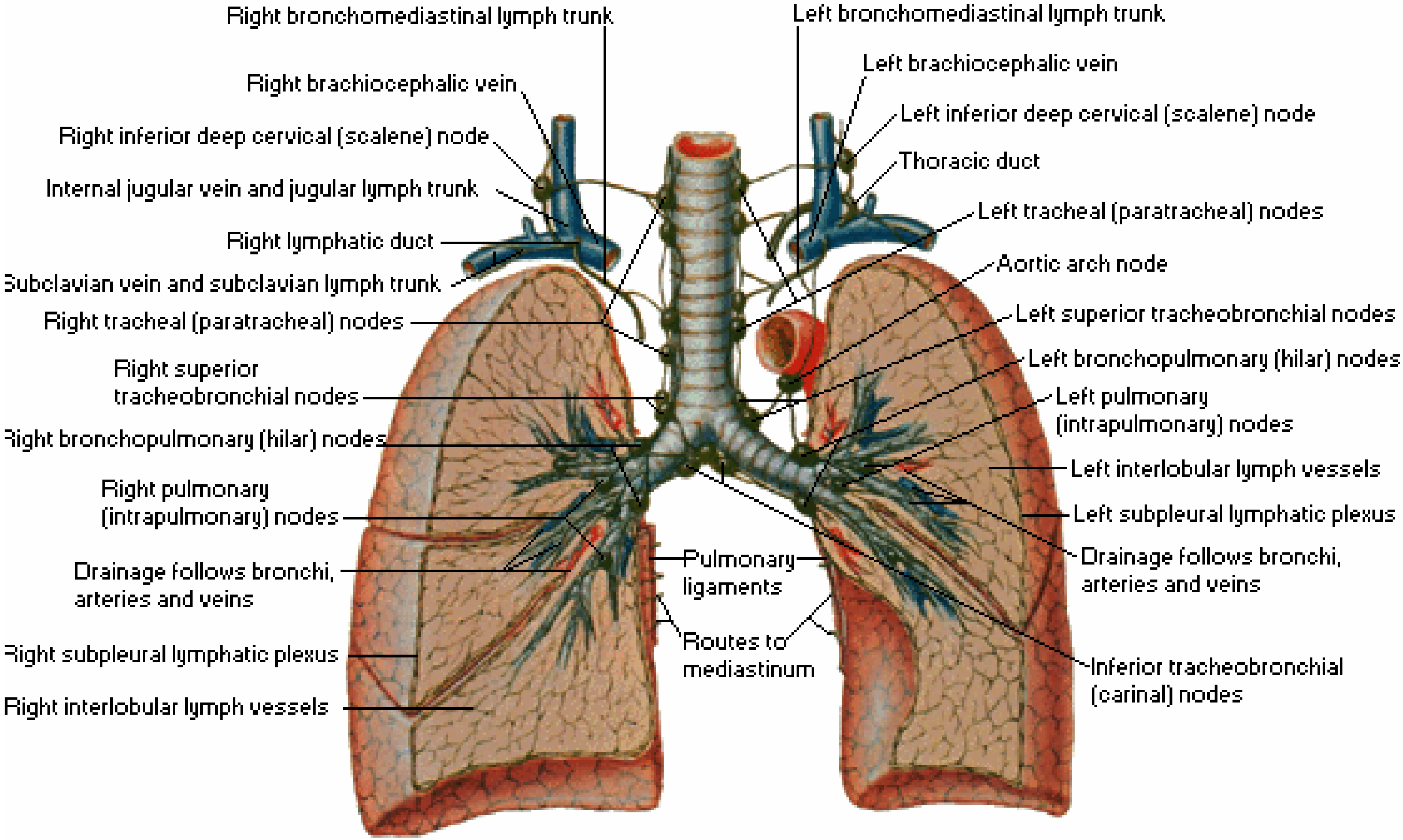


Right and left bronchial arteries originating from aorta by single stem



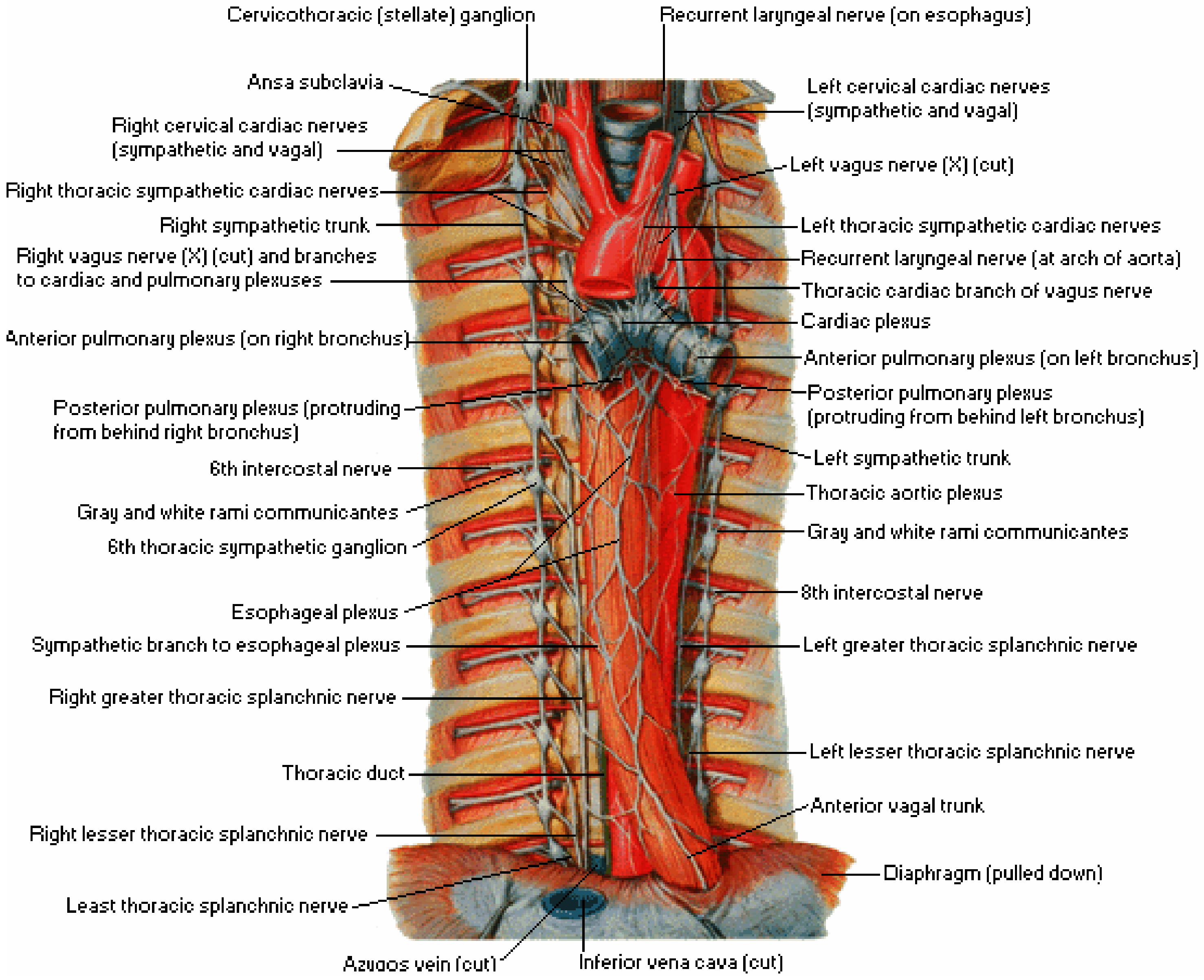
Only single bronchial artery to each bronchus (normally, two to left bronchus)


Left main bronchus
(turned up by hook)
Azygos vein
Right bronchial vein
Left bronchial vein
Accessory hemiazygos vein
Right main bronchus
(pulled to left and
rotated by hook)



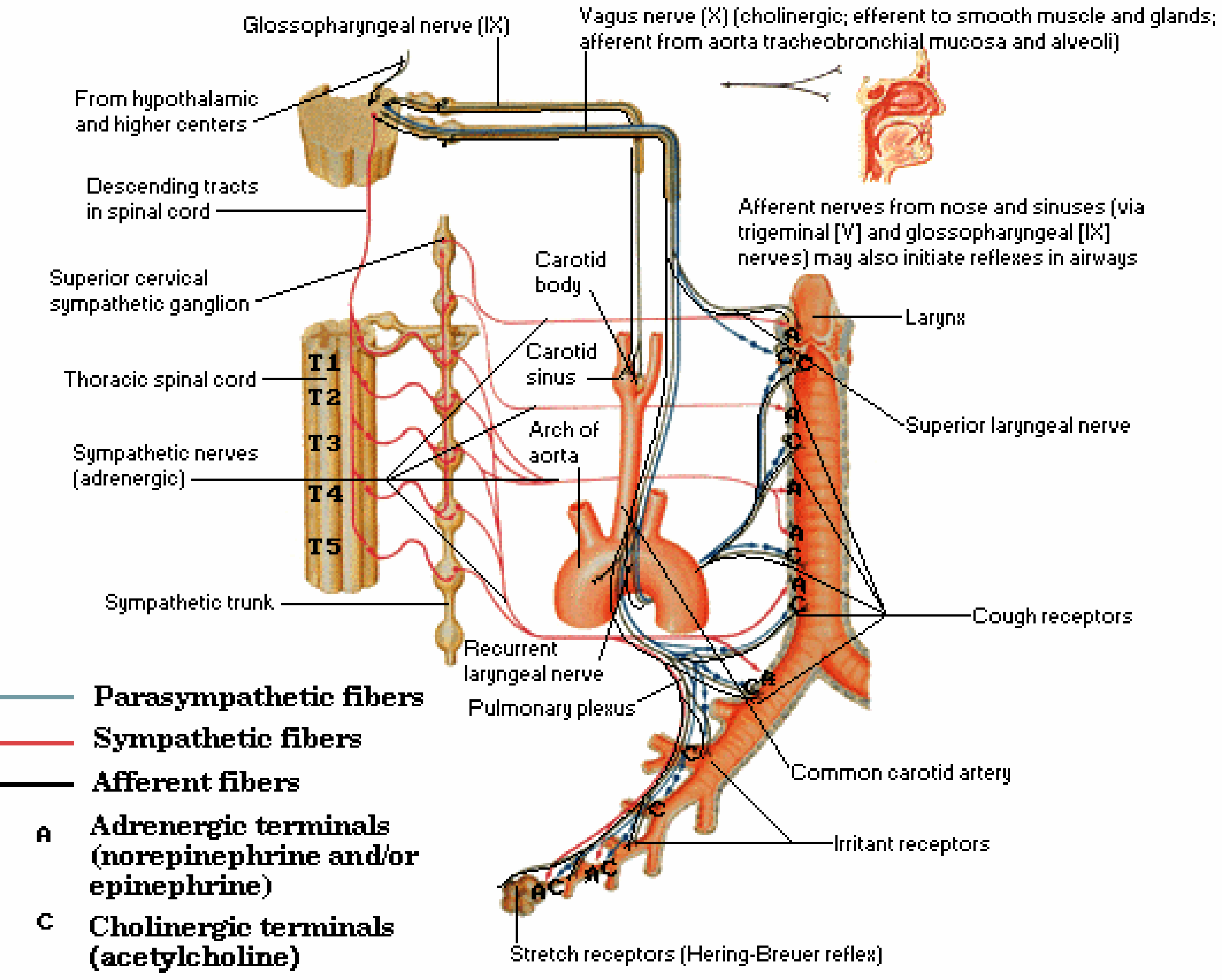
Right lung: All lobes drain to intrapulmonary and bronchopulmonary (hilar) nodes, then to inferior tracheobronchial (carinal) nodes, right superior tracheobronchial nodes and to right tracheal nodes on way to brachiocephalic vein via bronchomediastinal lymph trunk and/or scalene node.

Left lung: Upper lobe drains to pulmonary and hilar nodes, carinal nodes, left superior tracheobronchial nodes, left tracheal nodes and/or aortic arch node, then to brachiocephalic vein via left bronchomediastinal trunk and thoracic duct. Left lower lobe drains also to pulmonary and hilar nodes and to carinal nodes, but then mostly to right superior tracheobronchial nodes, where it follows same route as lymph from right lung.

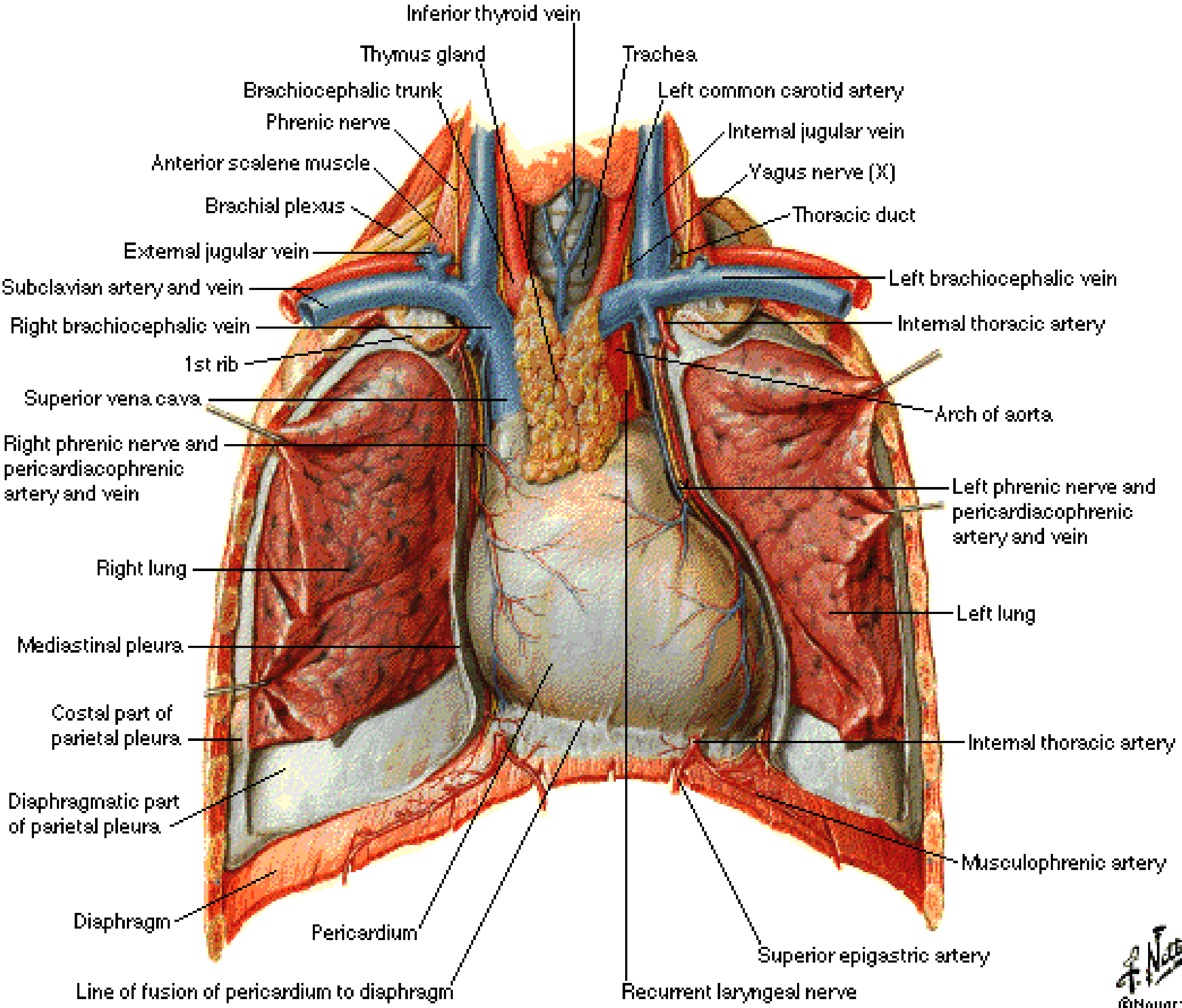


Cervicothoracic (stellate) ganglion
Recurrent laryngeal nerve (on esophagus)
Ansa subclavia
Left cervical cardiac nerves
(sympathetic and vagal)
Right cervical cardiac nerves
(sympathetic and vagal)
Left vagus nerve (X) (cut)
Right thoracic sympathetic cardiac nerves
Right sympathetic trunk
Left thoracic sympathetic cardiac nerves
Right vagus nerve (X) (cut) and branches
to cardiac and pulmonary plexuses
Recurrent laryngeal nerve (at arch of aorta)
Thoracic cardiac branch of vagus nerve
Cardiac plexus
Anterior pulmonary plexus (on right bronchus)
Anterior pulmonary plexus (on left bronchus)
Posterior pulmonary plexus (protruding
from behind right bronchus)
Posterior pulmonary plexus
(protruding from behind left bronchus)
Left sympathetic trunk
6th intercostal nerve
Thoracic aortic plexus
Gray and white rami communicantes
6th thoracic sympathetic ganglion
Gray and white rami communicantes
8th intercostal nerve
Esophageal plexus
Sympathetic branch to esophageal plexus
Left greater thoracic splanchnic nerve
Right greater thoracic splanchnic nerve
Left lesser thoracic splanchnic nerve
Thoracic duct
Anterior vagal trunk
Right lesser thoracic splanchnic nerve
Diaphragm (pulled down)
Least thoracic splanchnic nerve
Azygos vein (cut)
Inferior vena cava (cut)

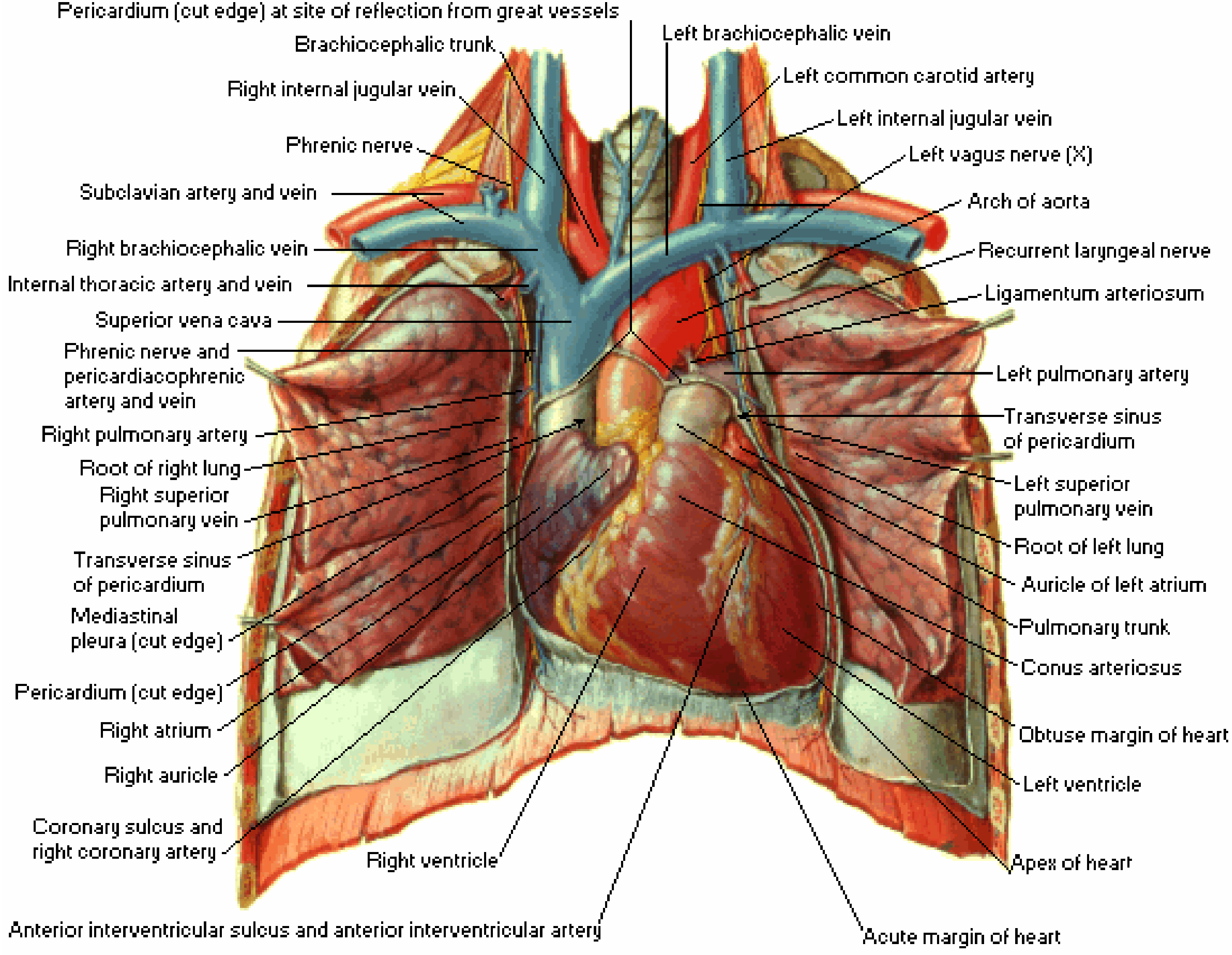
Schema


Glossopharyngeal nerve (IX)
Vagus nerve (X) (cholinergic; efferent to smooth muscle and glands; afferent from aorta tracheobronchial mucosa and alveoli)
From hypothalamic and higher centers
Descending tracts in spinal cord
Superior cervical sympathetic ganglion
Afferent nerves from nose and sinuses (via trigeminal [V] and glossopharyngeal [IX] nerves) may also initiate reflexes in airways
Carotid body
Carotid sinus
Larynx
Thoracic spinal cord
T1
T2
T3
T4
T5
Superior laryngeal nerve
Arch of aorta
Sympathetic nerves (adrenergic)
Sympathetic trunk
Cough receptors
Recurrent laryngeal nerve
Pulmonary plexus
Common carotid artery
Irritant receptors
Stretch receptors (Hering-Breuer reflex)
Parasympathetic fibers
Sympathetic fibers
Afferent fibers
A Adrenergic terminals (norepinephrine and/or epinephrine)
C Cholinergic terminals (acetylcholine)

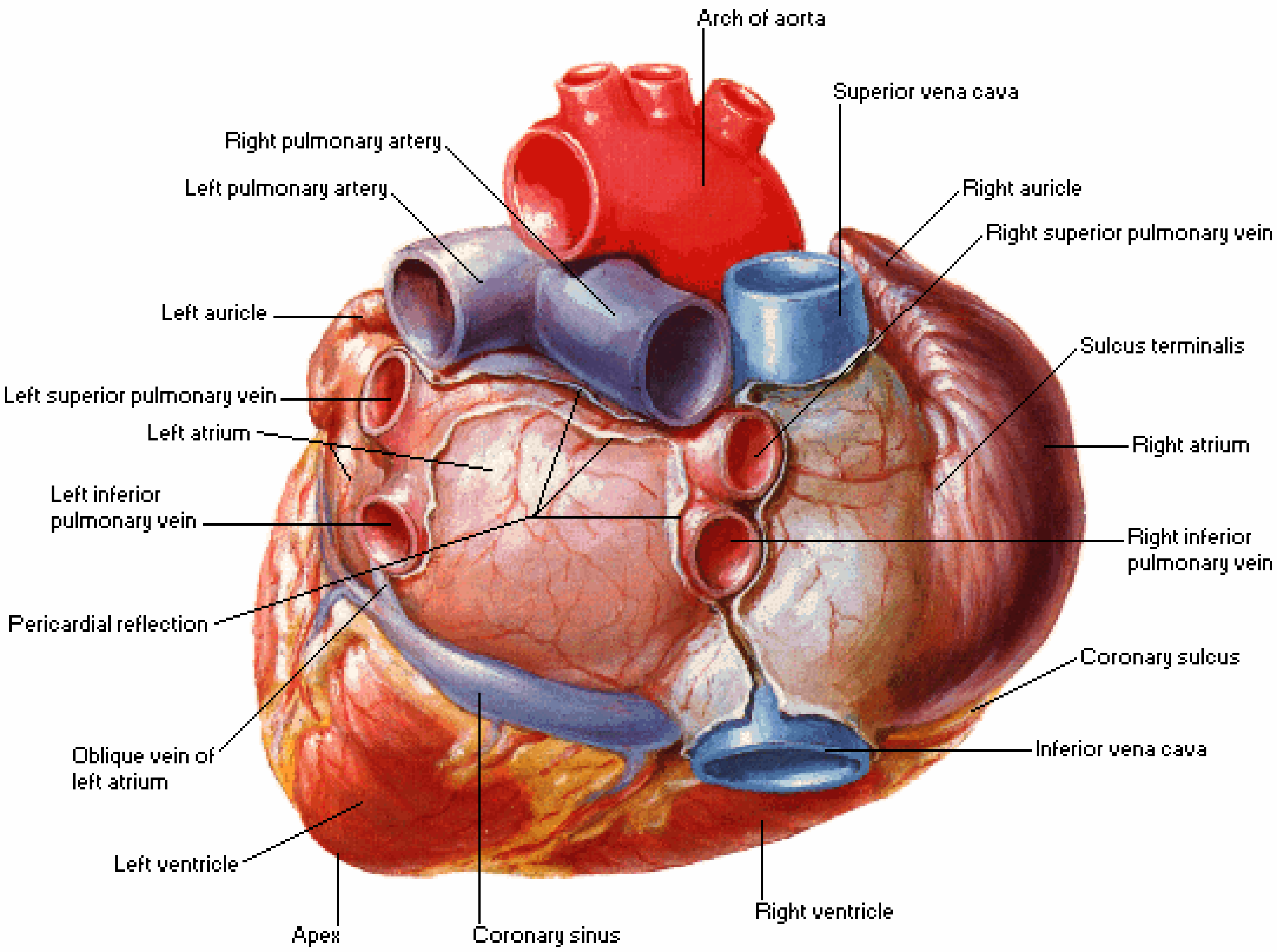
Heart in Situ



Anterior Exposure

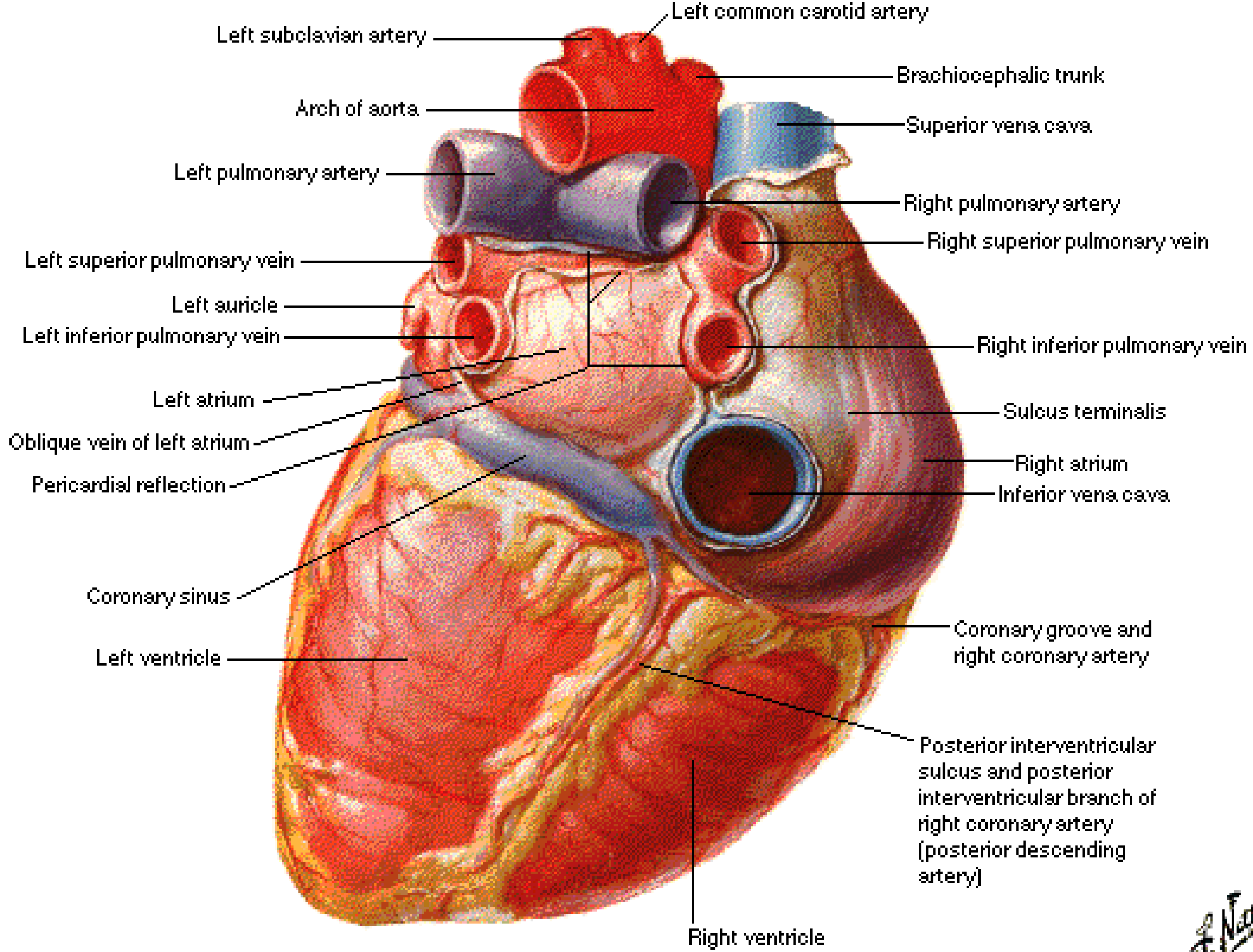


Posterior View

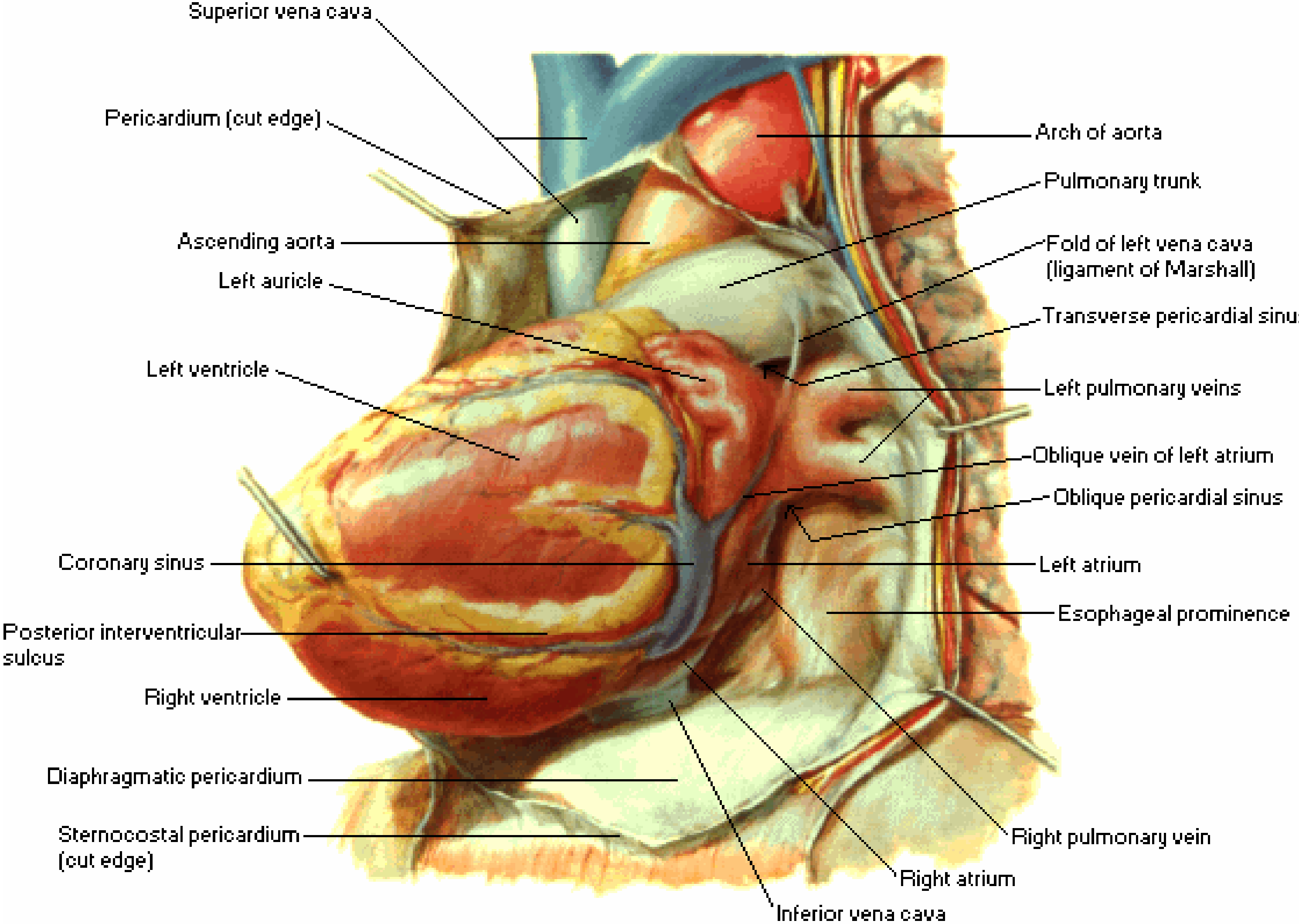


Heart - Diaphragmatic Surface

Posteroinferior View

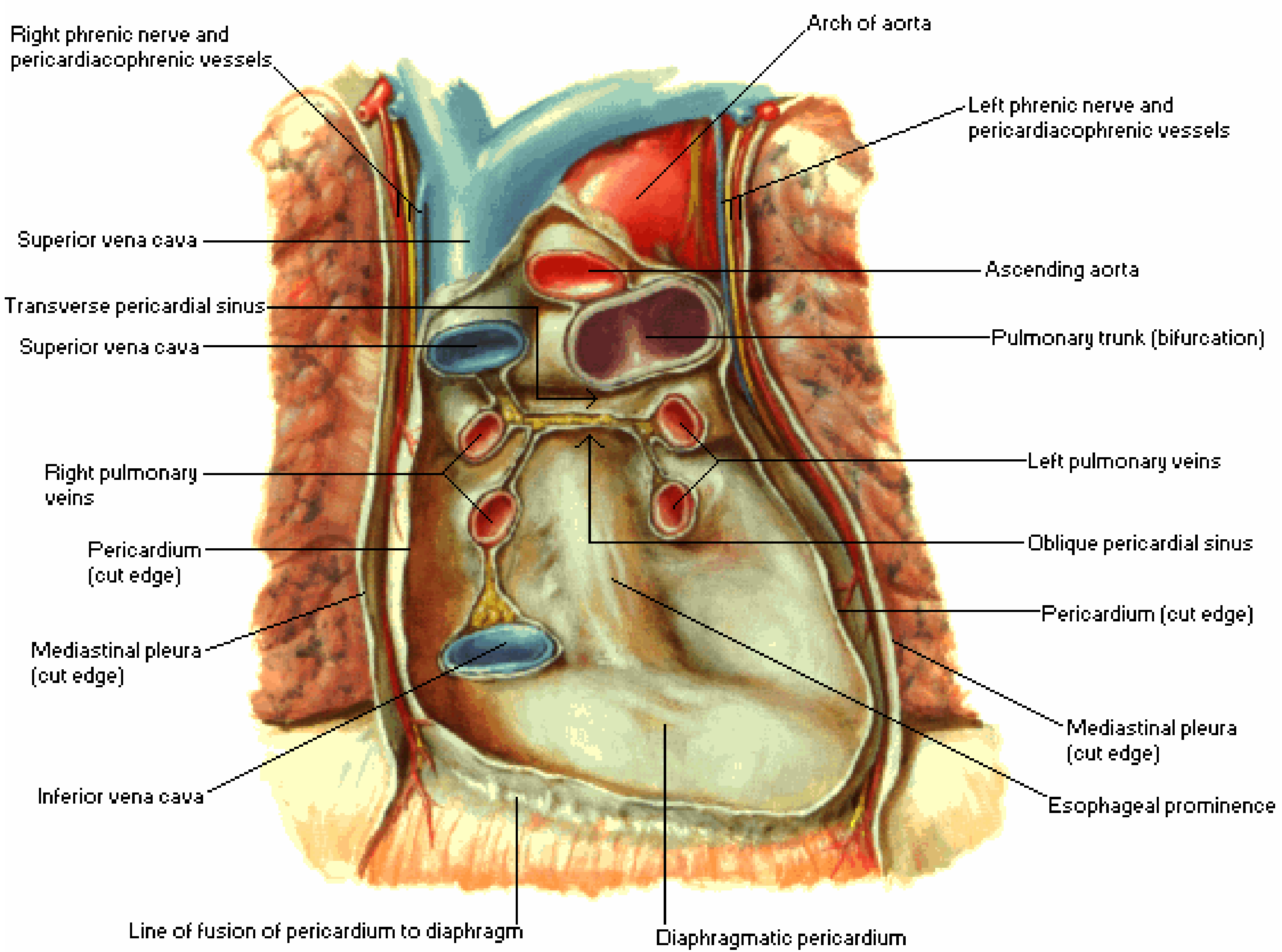


Left Lateral View

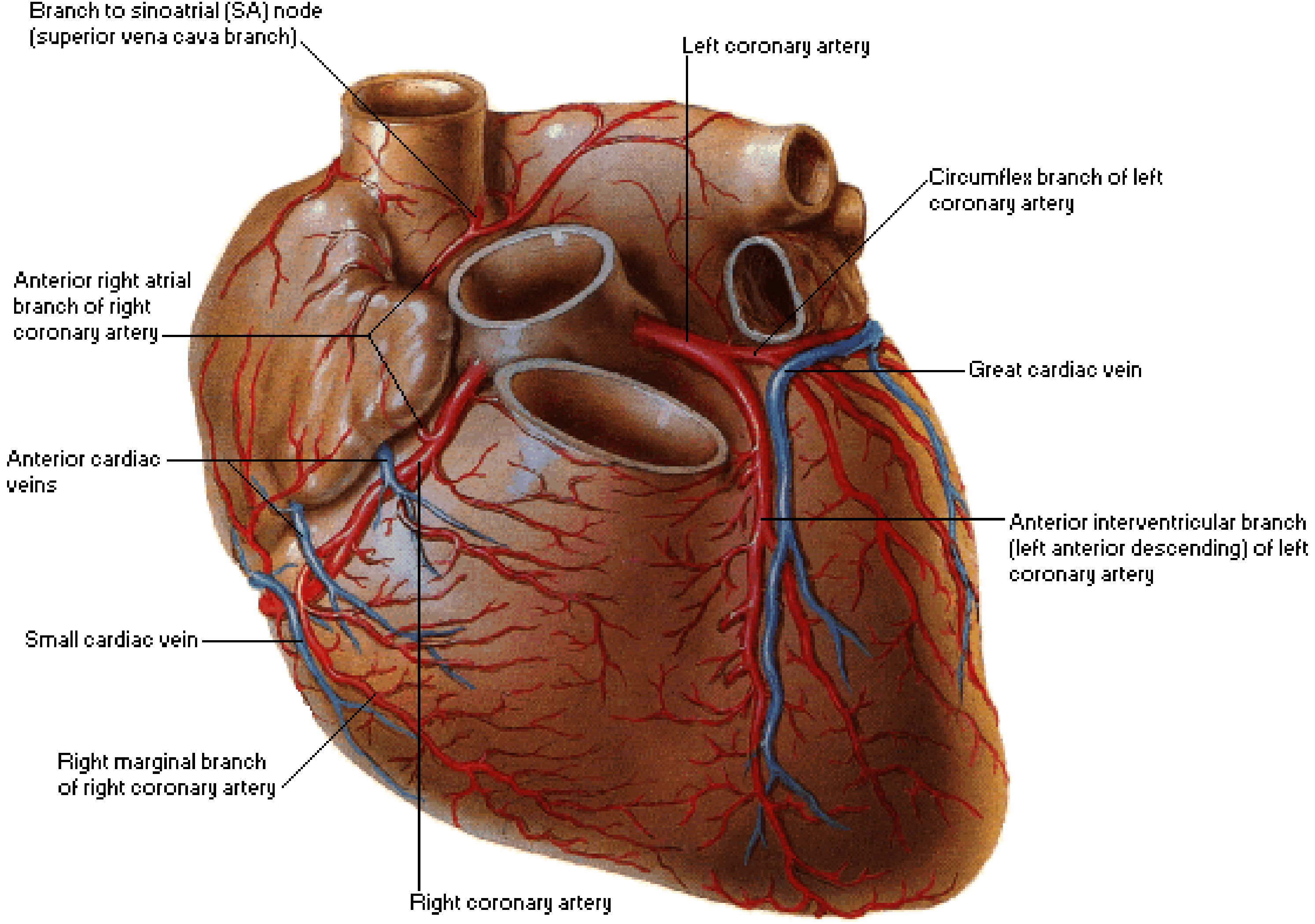


Heart drawn out of opened pericardial sac

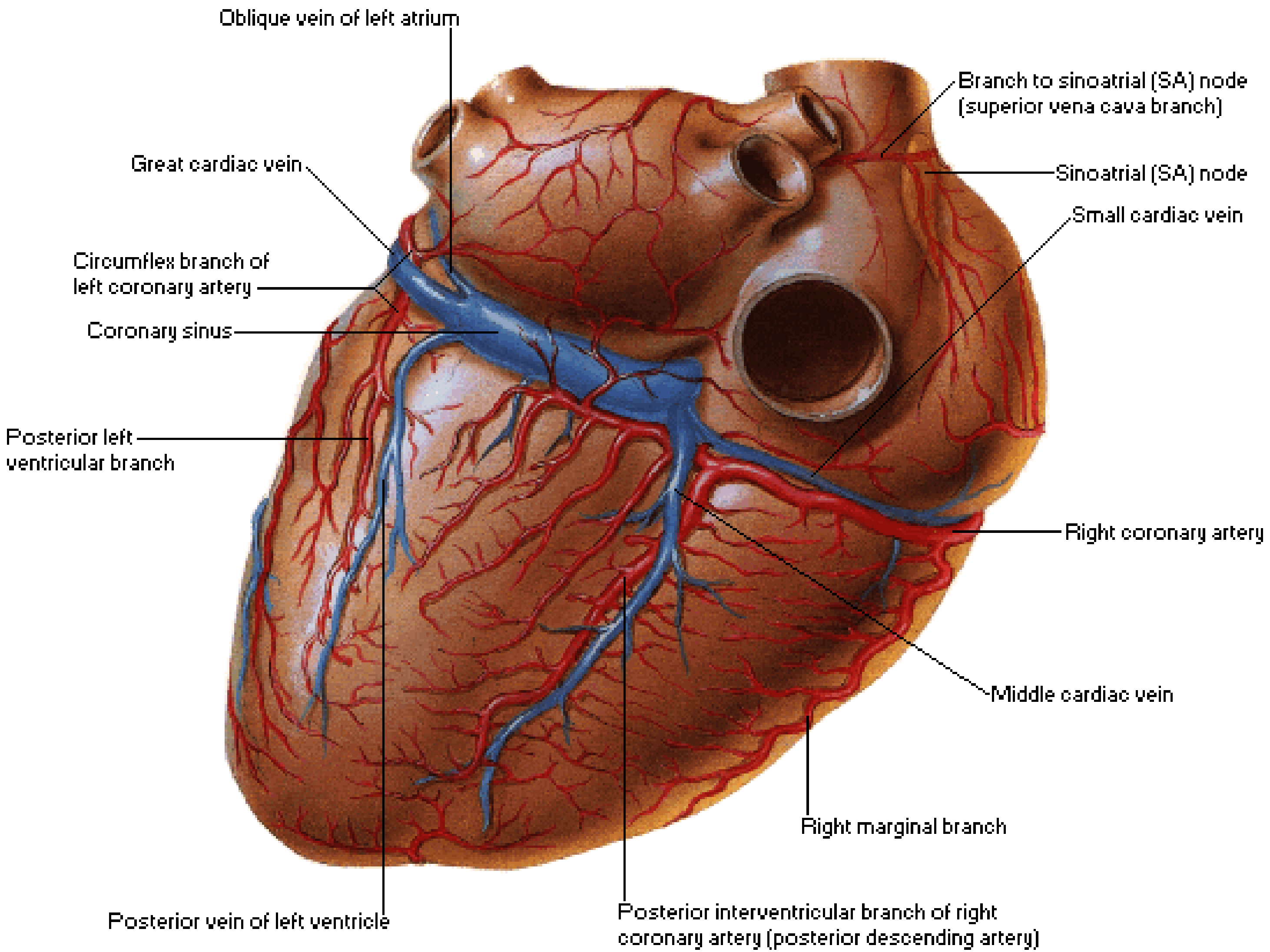
Anterior View



Sternocostal Surface

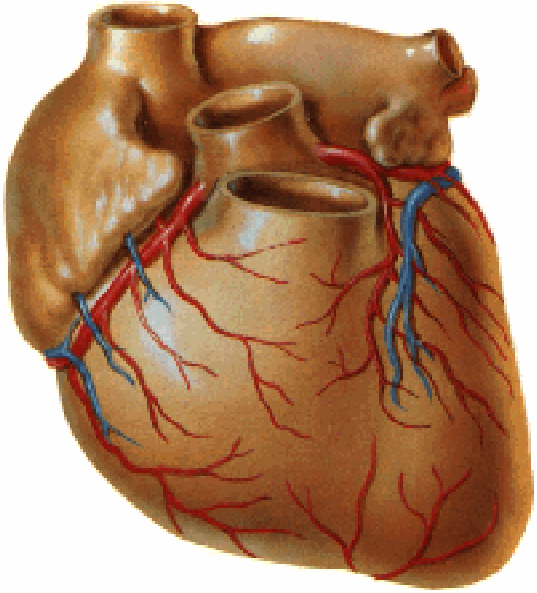


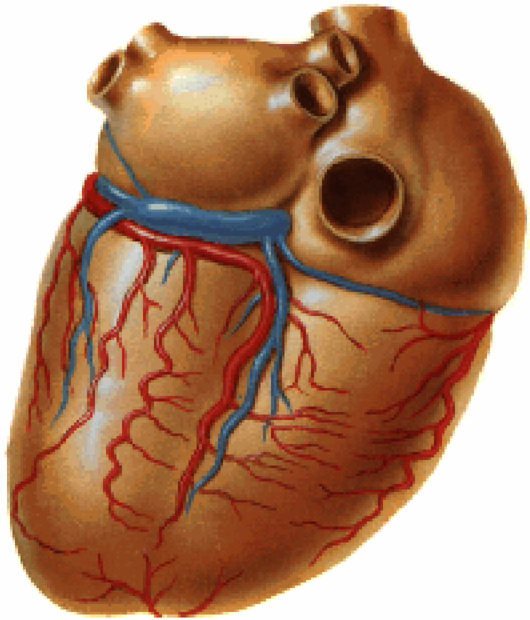
Diaphragmatic Surface



Variations 1

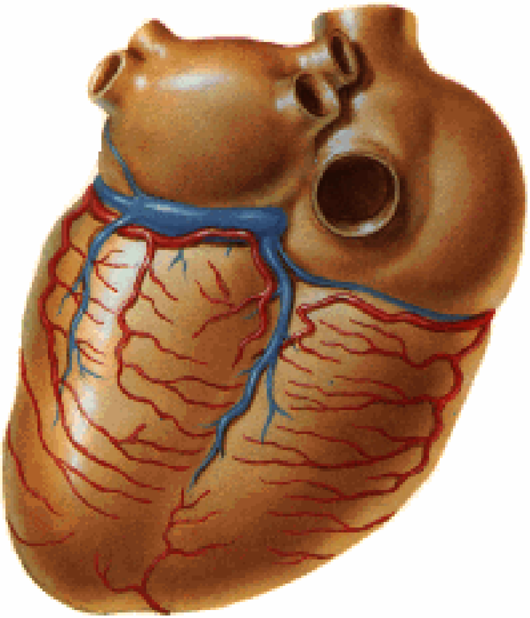
Posterior interventricular (posterior descending) branch derived from circumflex branch of left coronary artery instead of from right coronary artery.



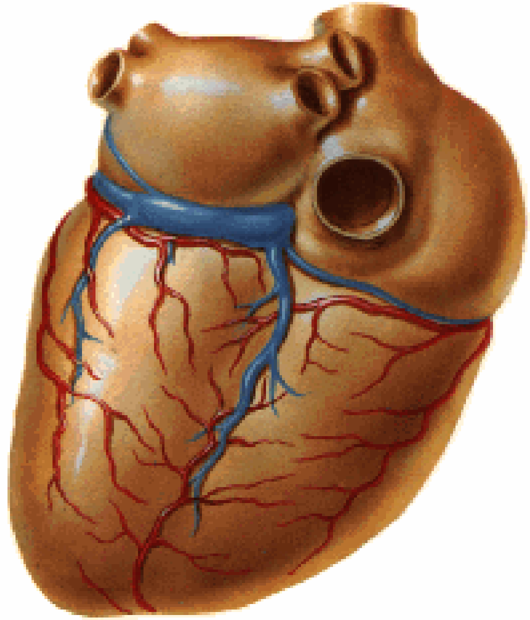


Anterior interventricular (left anterior descending) branch of left coronary artery very short. Apical part of sternocostal surface supplied by branches from posterior interventricular (posterior descending) branch of right coronary artery curving around apex.

Variations 2

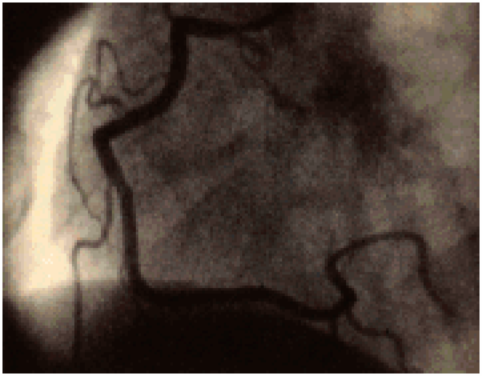


Posterior interventricular (posterior descending) branch absent. Area supplied chiefly by small branches from circumflex branch of left coronary artery and from right coronary artery.

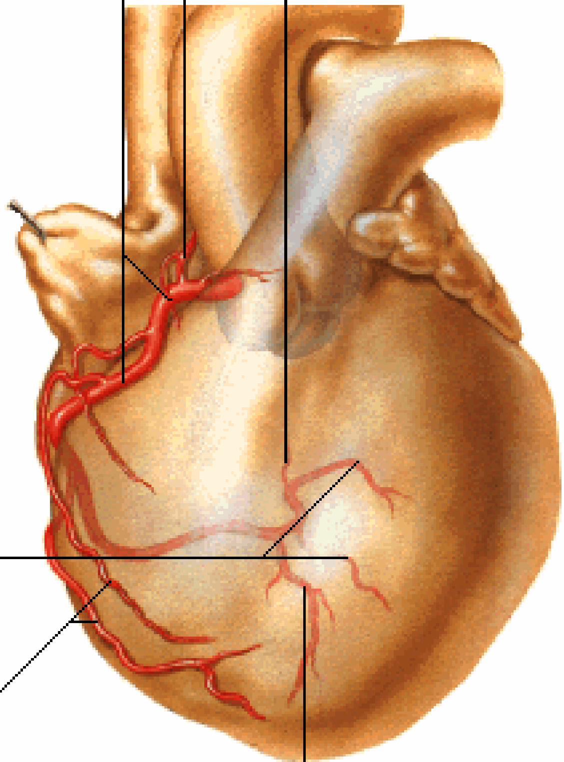


Posterior interventricular (posterior descending) branch absent. Area supplied chiefly by elongated anterior interventricular (left anterior descending) branch curving around apex.

Arteriographic View 1

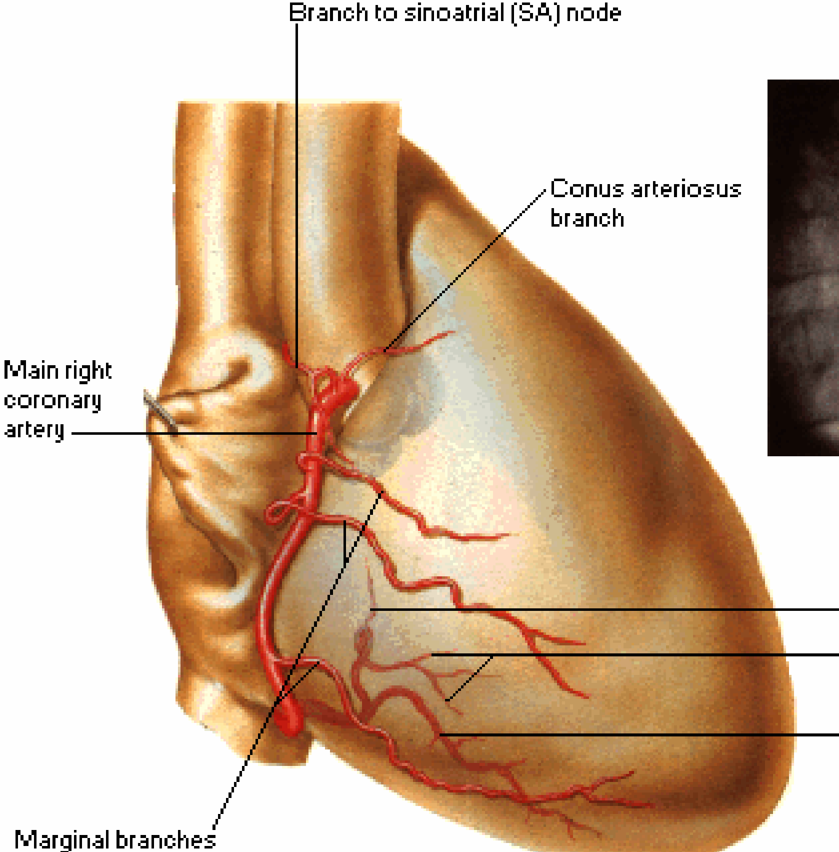


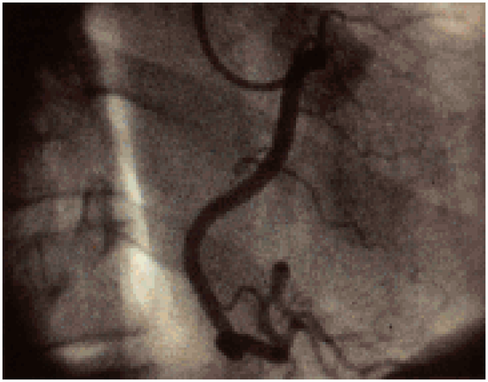
Arteriogram



Left anterior oblique view

Arteriographic View 2

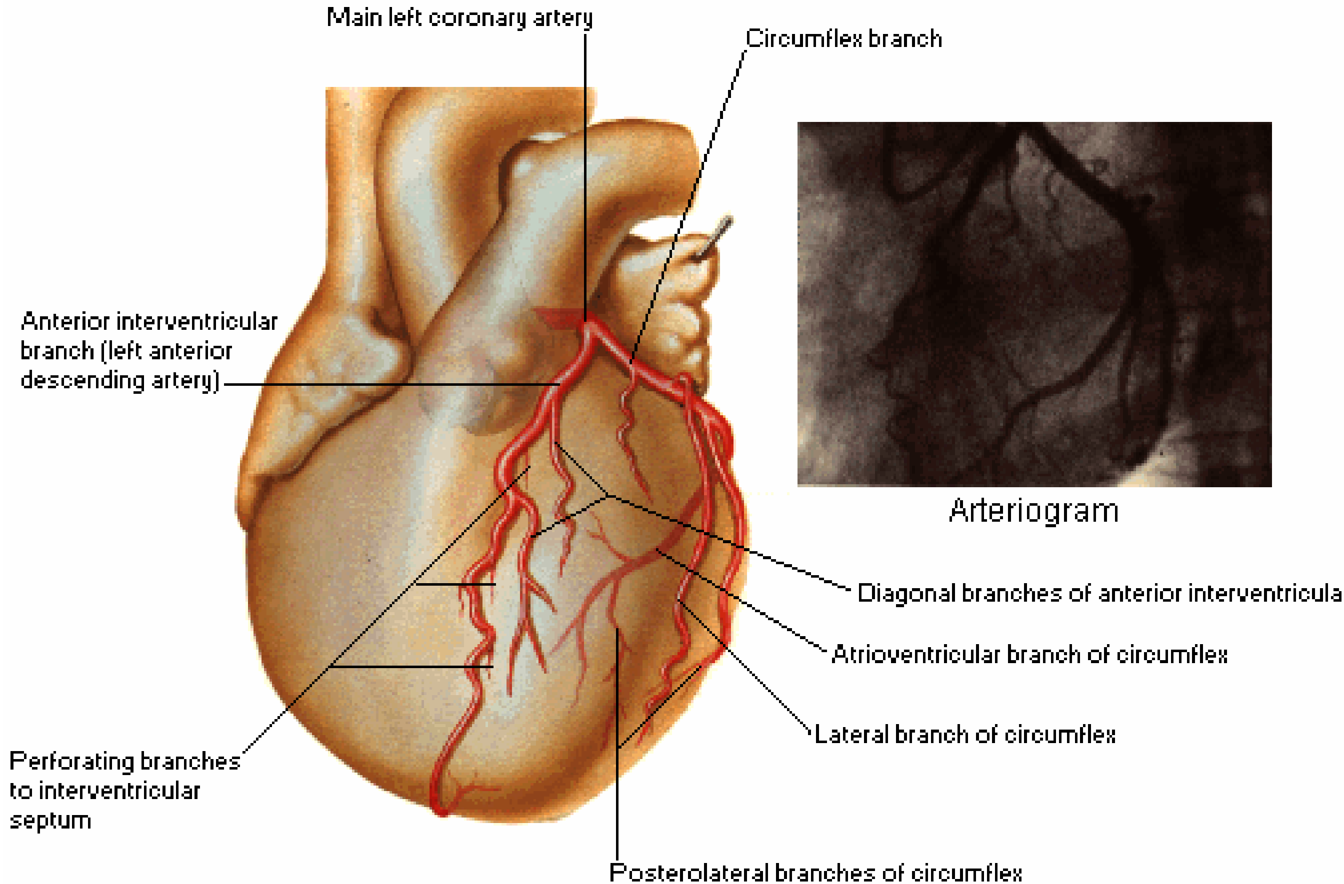




Arteriogram

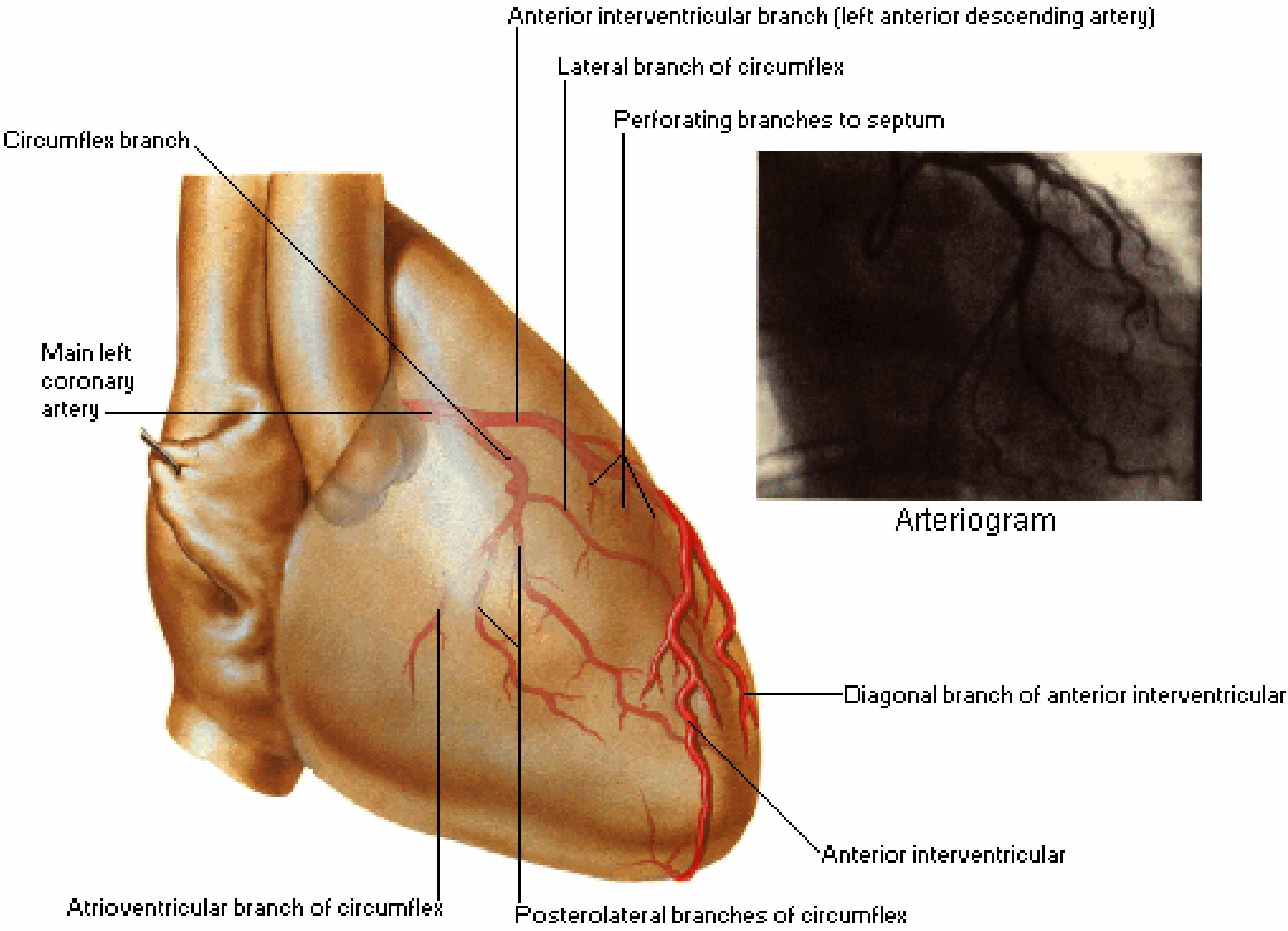
Right anterior oblique view

Arteriographic View 1



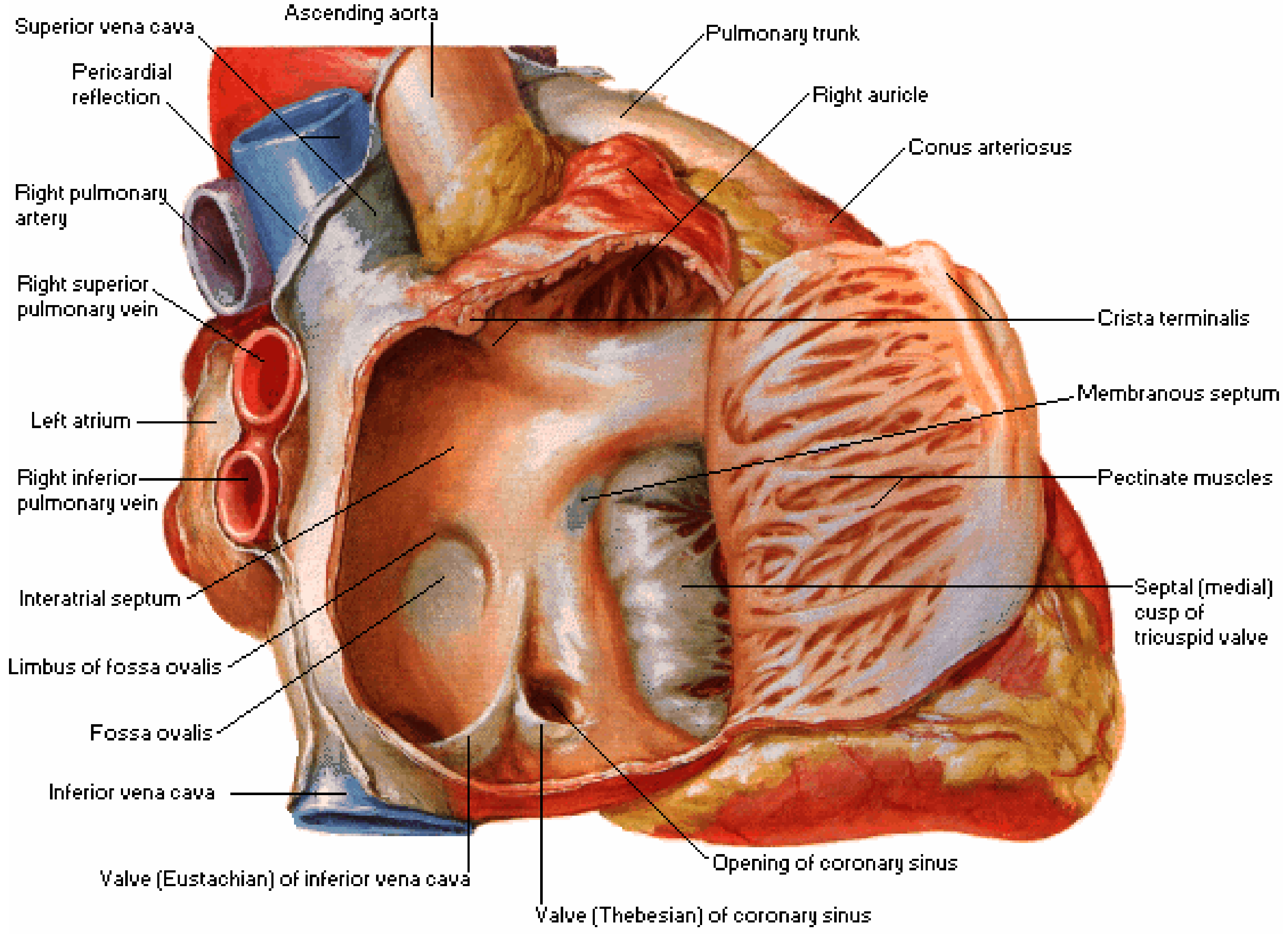
Left anterior oblique view

Arteriographic View 2

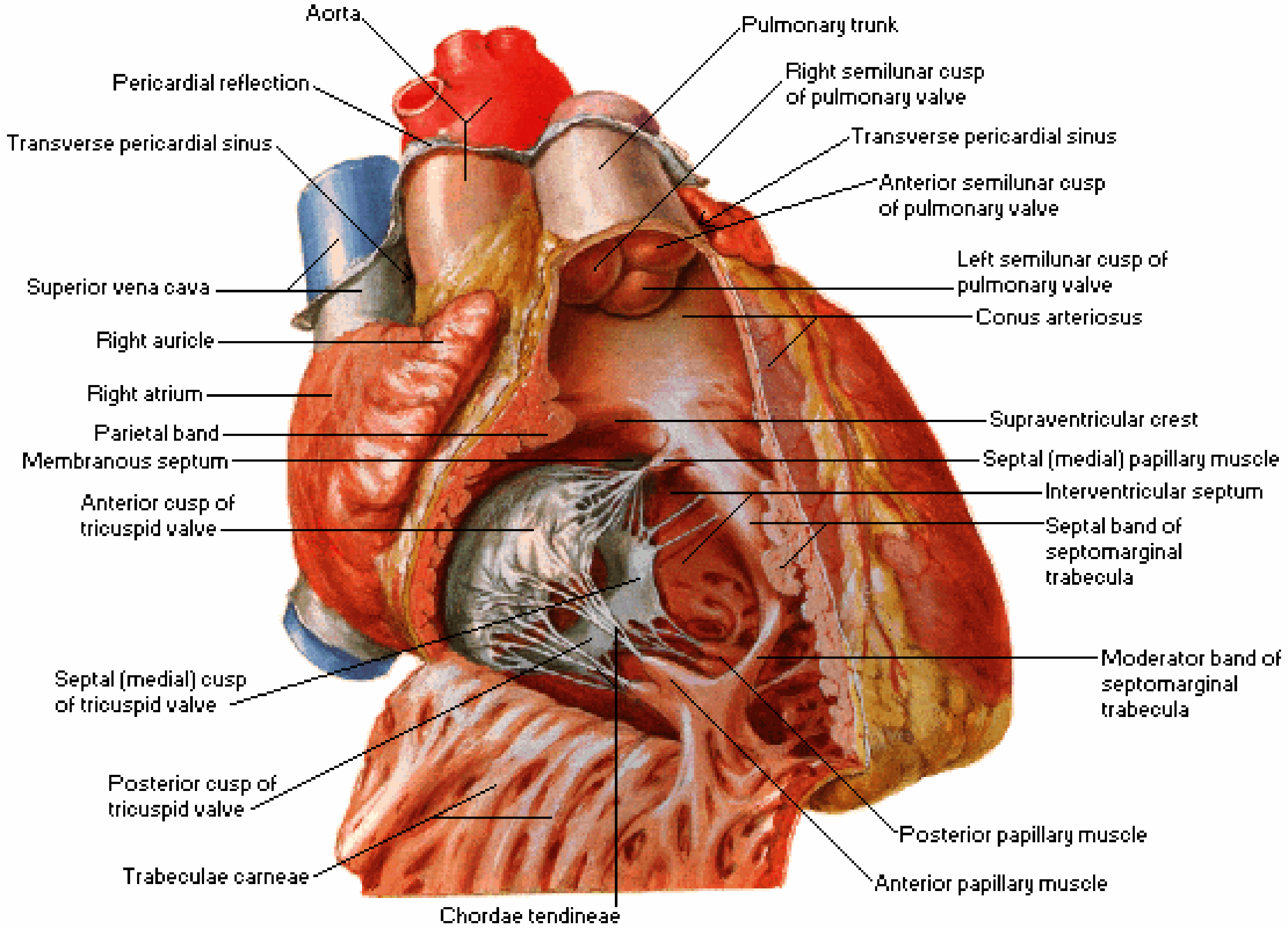


Right anterior oblique view

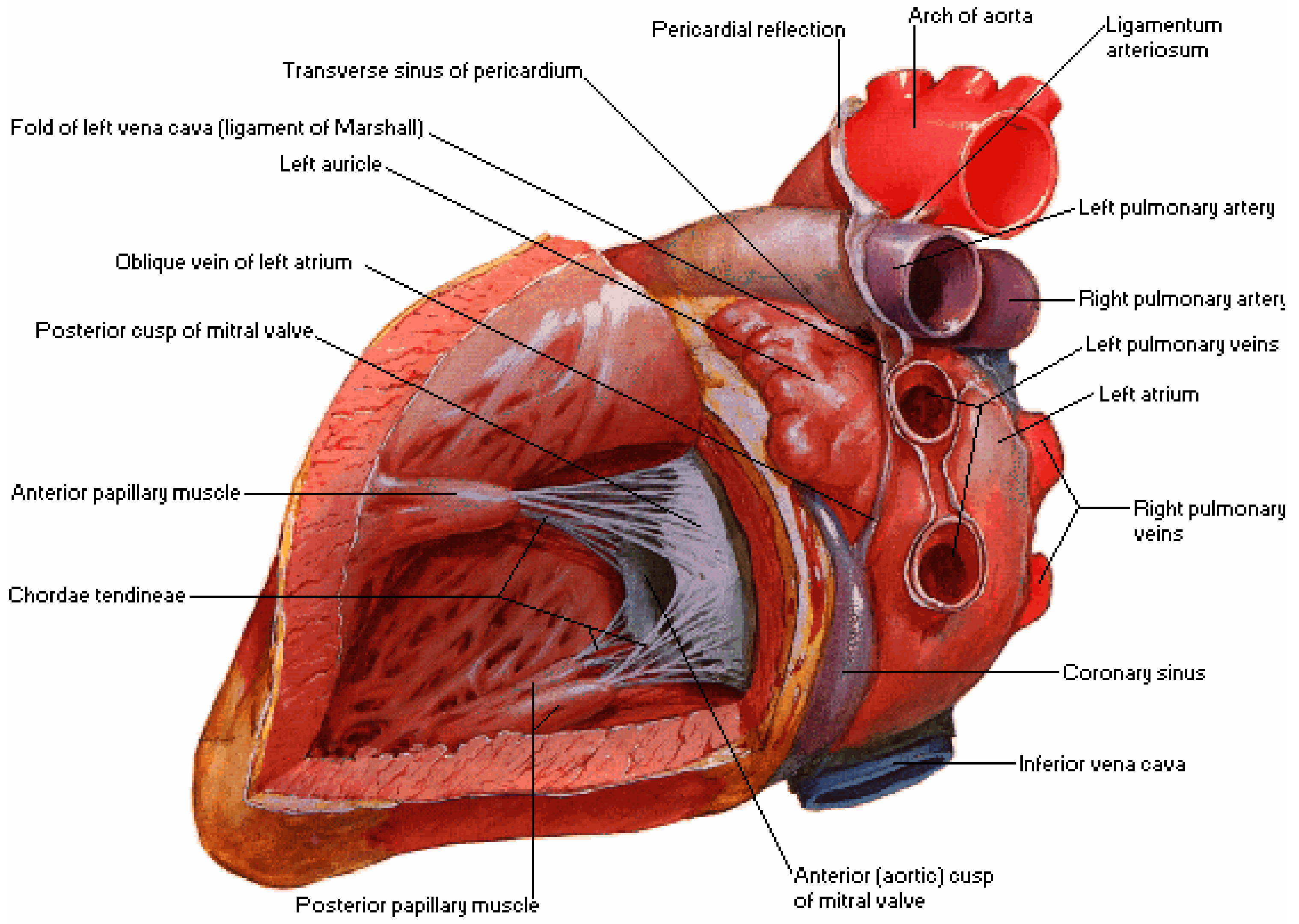
Right Lateral View



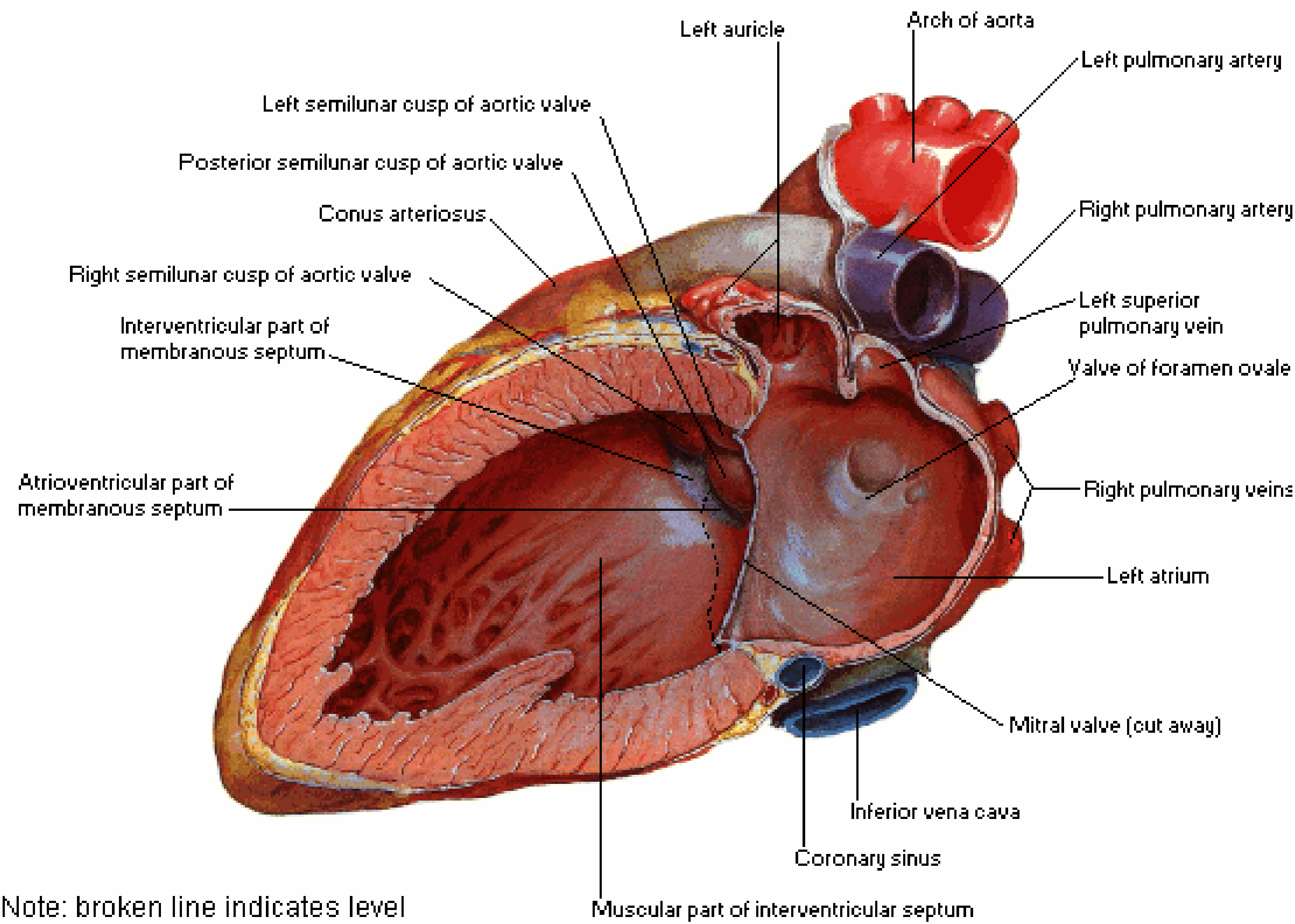
Anterior View



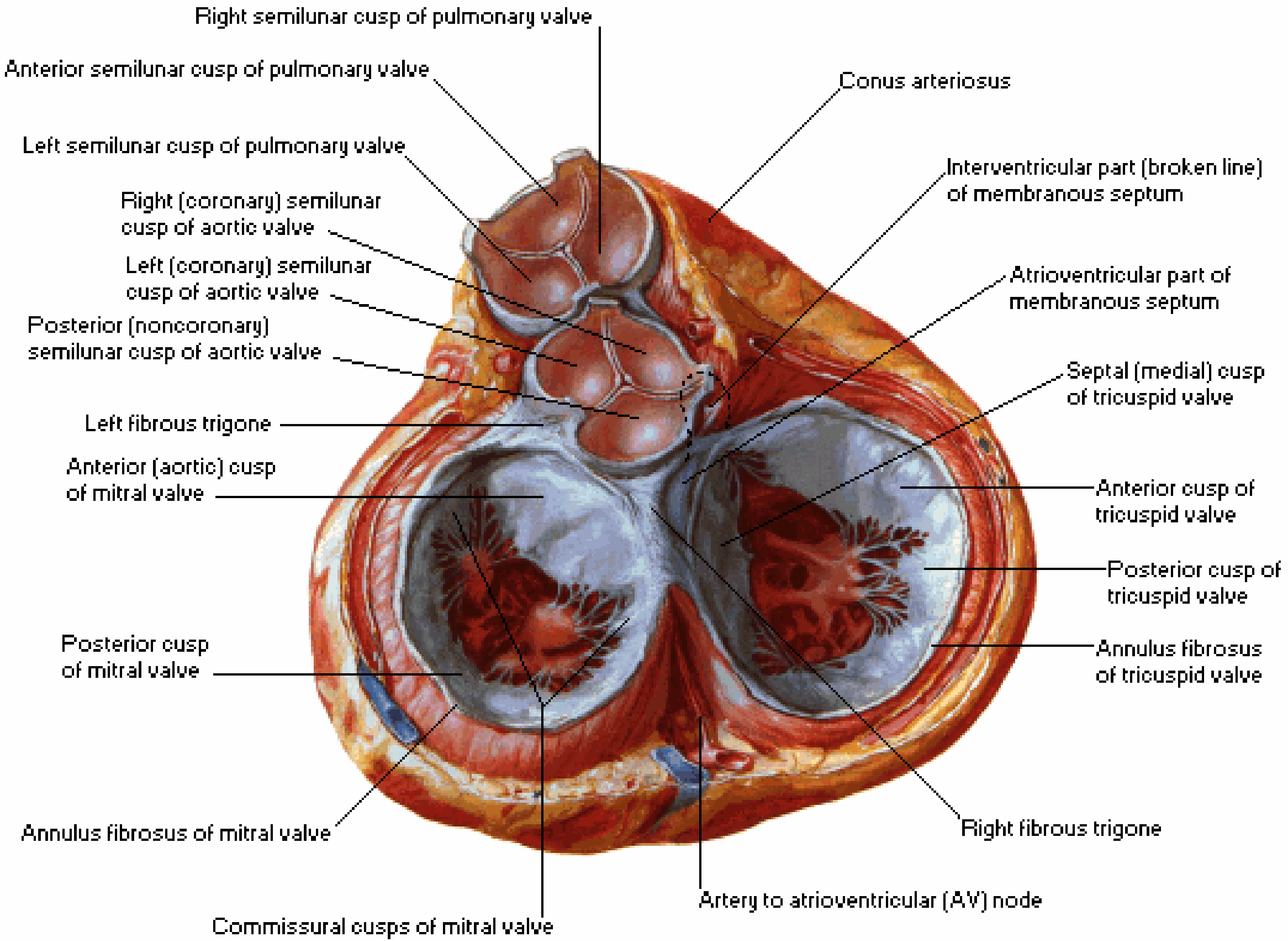
Flap Opened in Posterolateral Wall



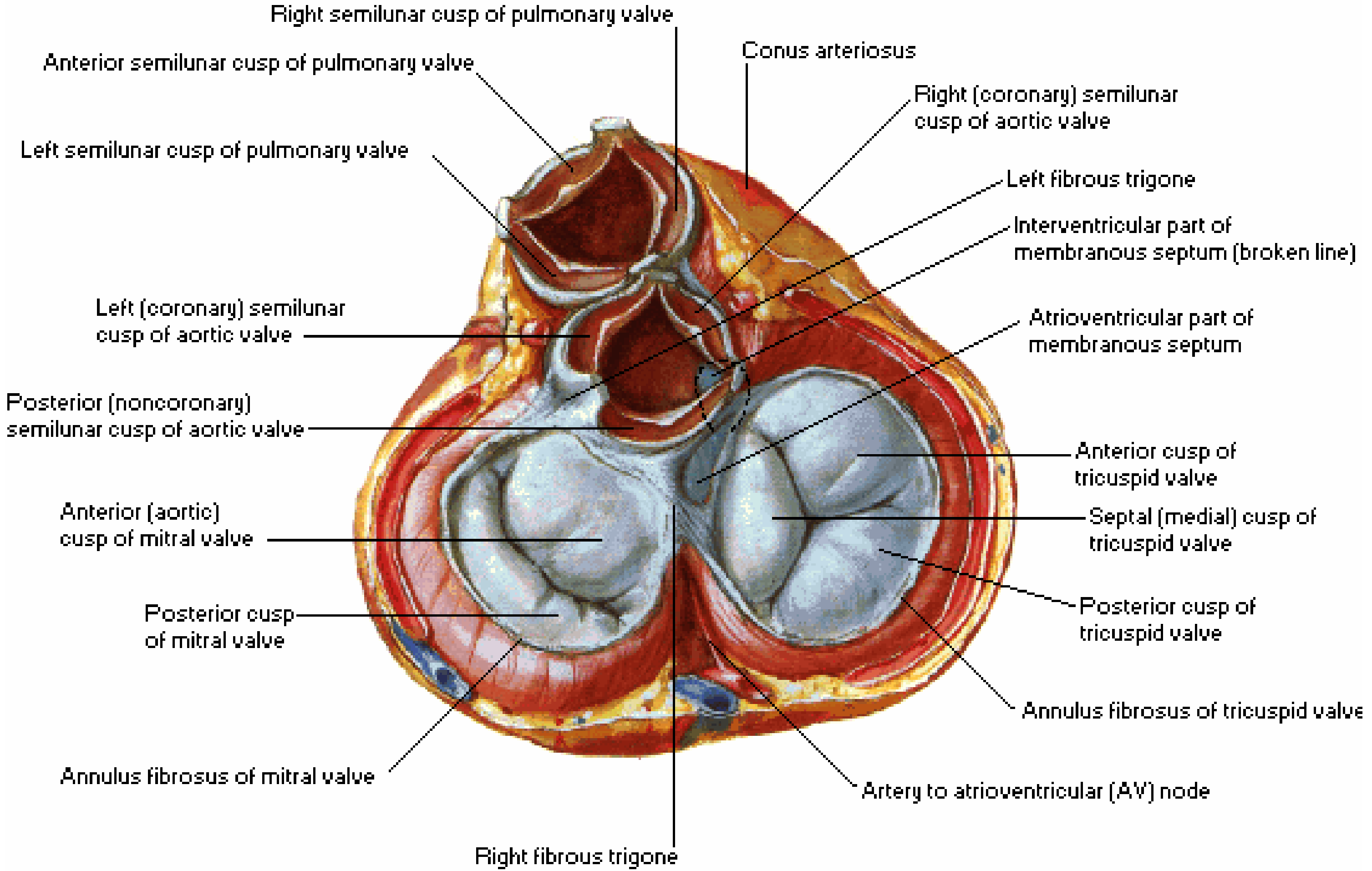
Sectioned with Mitral Valve Cut Away



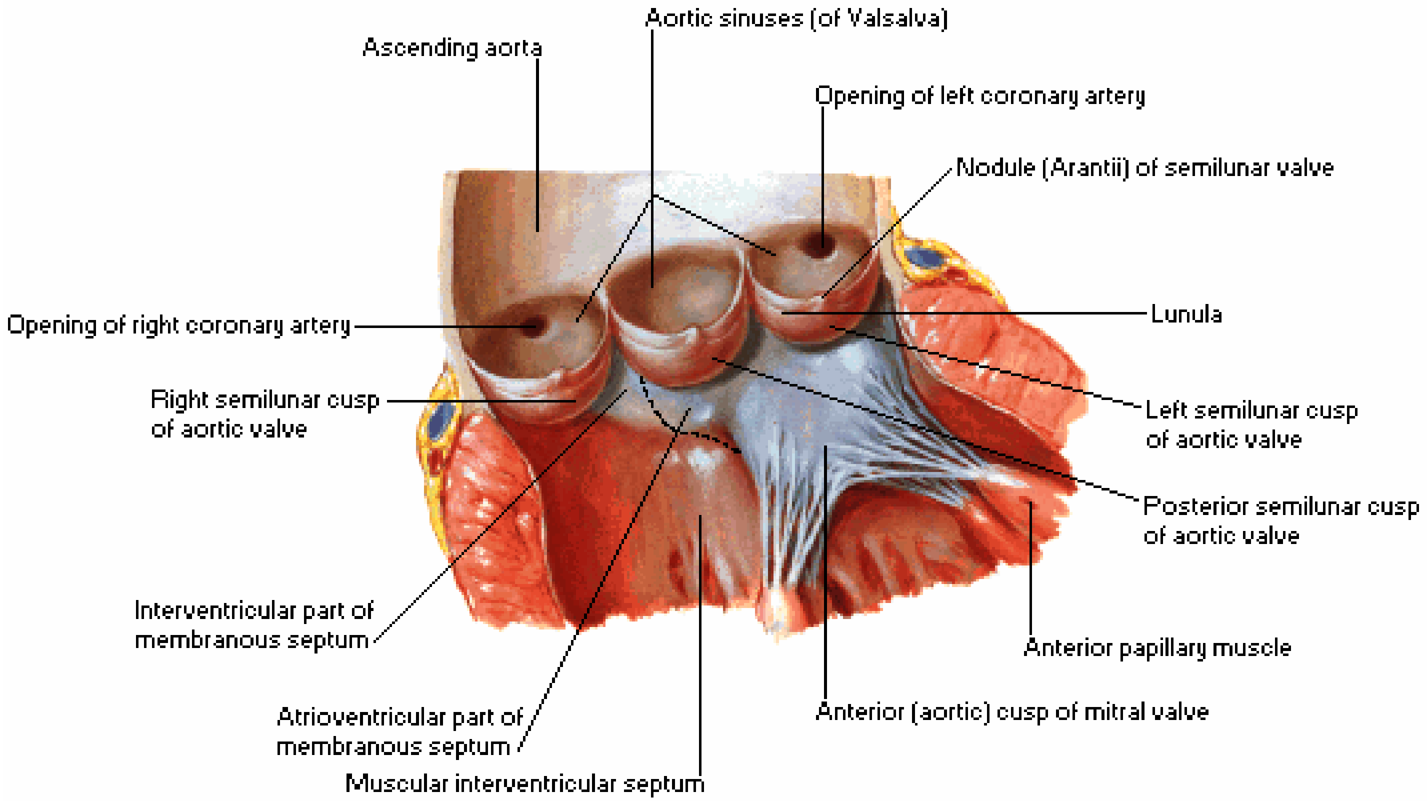
Note: broken line indicates level of origin of tricuspid valve



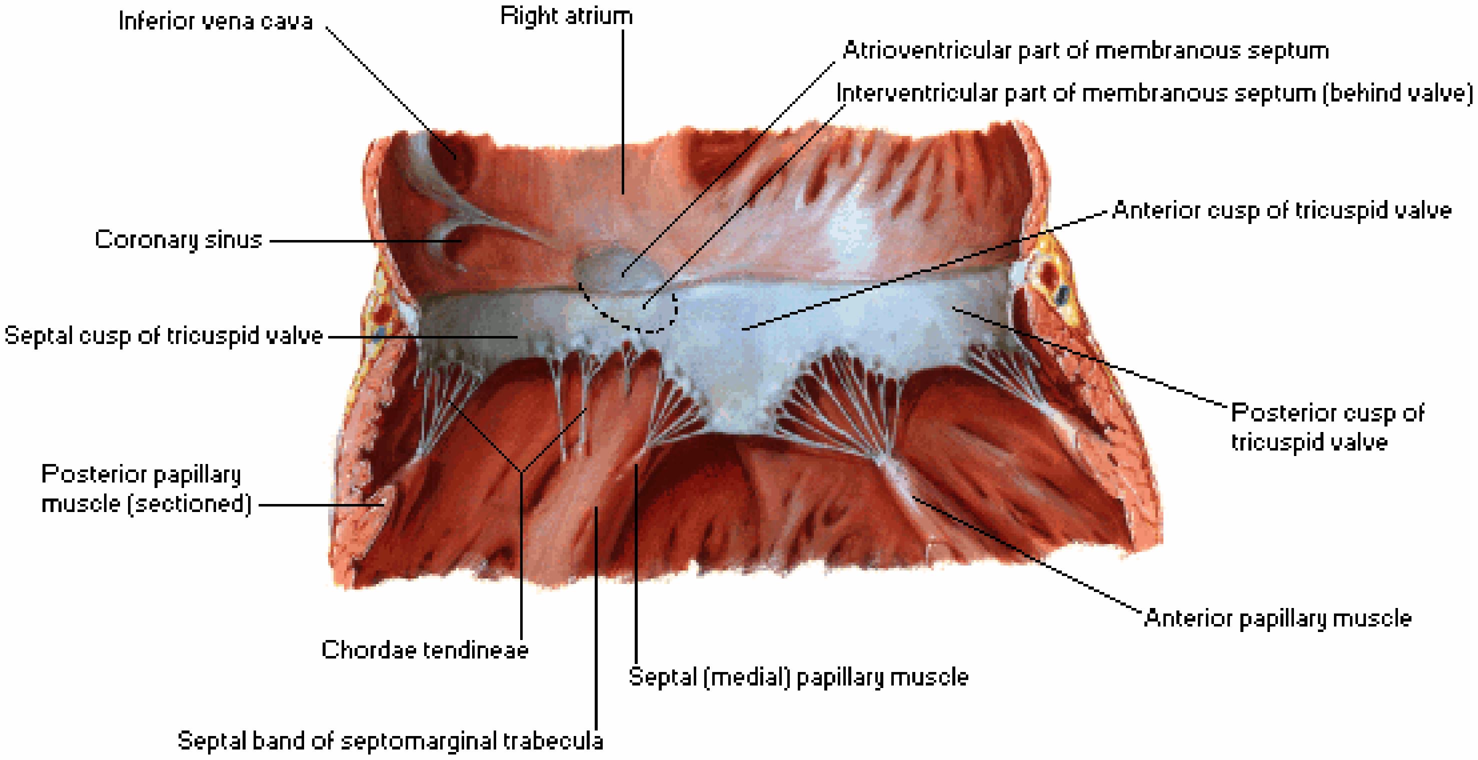
Viewed from base with atria removed



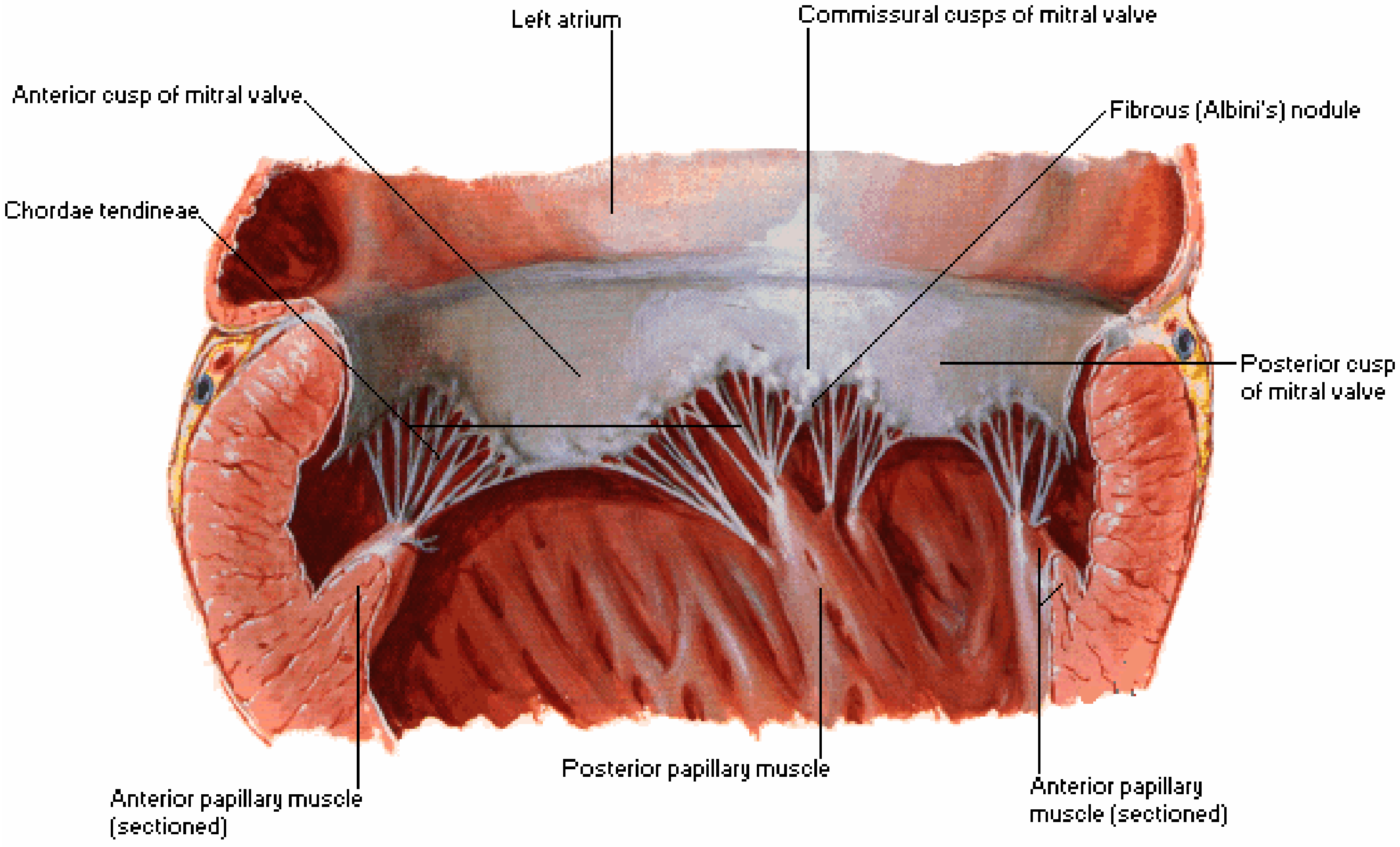
Viewed from base with atria removed



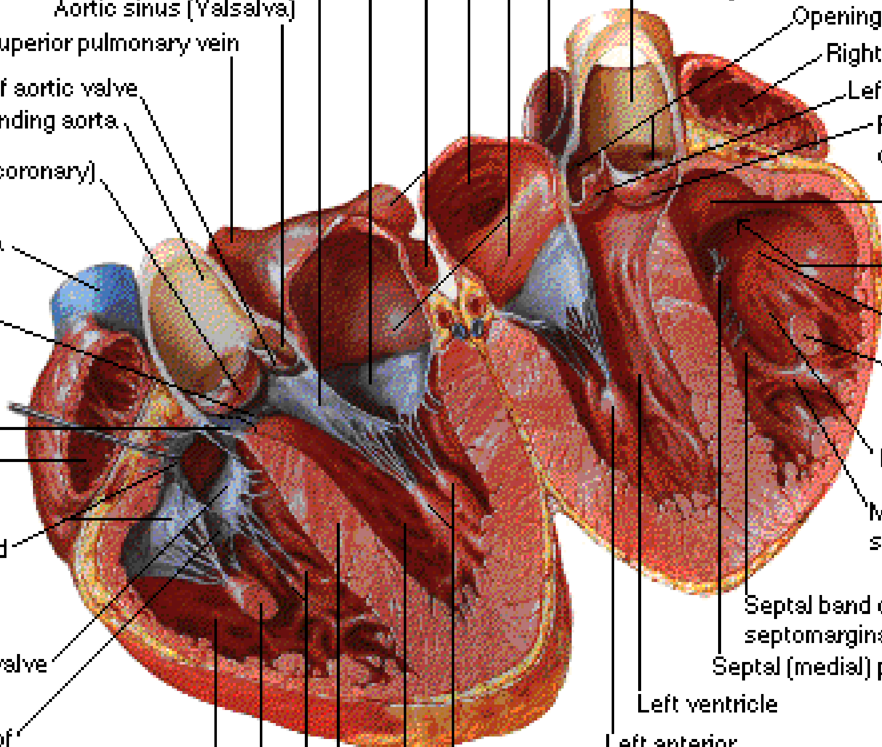
Note: broken line indicates level of origin of tricuspid valve on opposite side of septum.

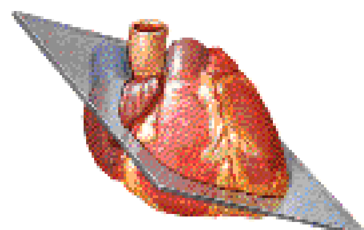


Inferior vena cava
Right atrium
Atrioventricular part of membranous septum
Interventricular part of membranous septum (behind valve)
Anterior cusp of tricuspid valve
Coronary sinus
Septal cusp of tricuspid valve
Posterior cusp of tricuspid valve
Posterior papillary muscle (sectioned)
Anterior papillary muscle
Chordae tendineae
Septal (medial) papillary muscle
Septal band of septomarginal trabecula


Left atrium
Commissural cusps of mitral valve
Anterior cusp of mitral valve
Fibrous (Albini's) nodule
Chordae tendineae
Posterior cusp of mitral valve
Posterior papillary muscle
Anterior papillary muscle (sectioned)
Anterior papillary muscle (sectioned)

Atria, Ventricles and Interventricular Septum

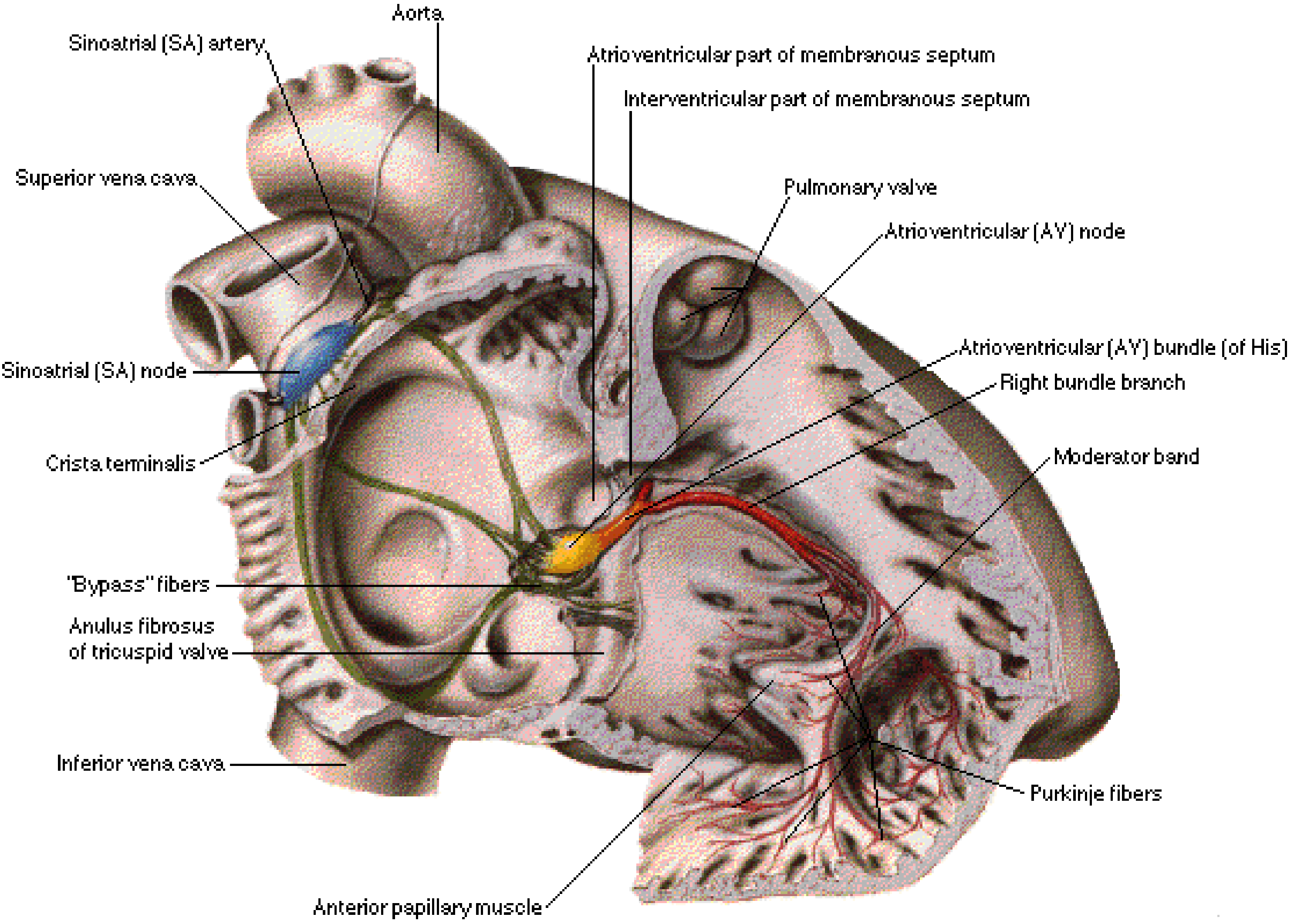




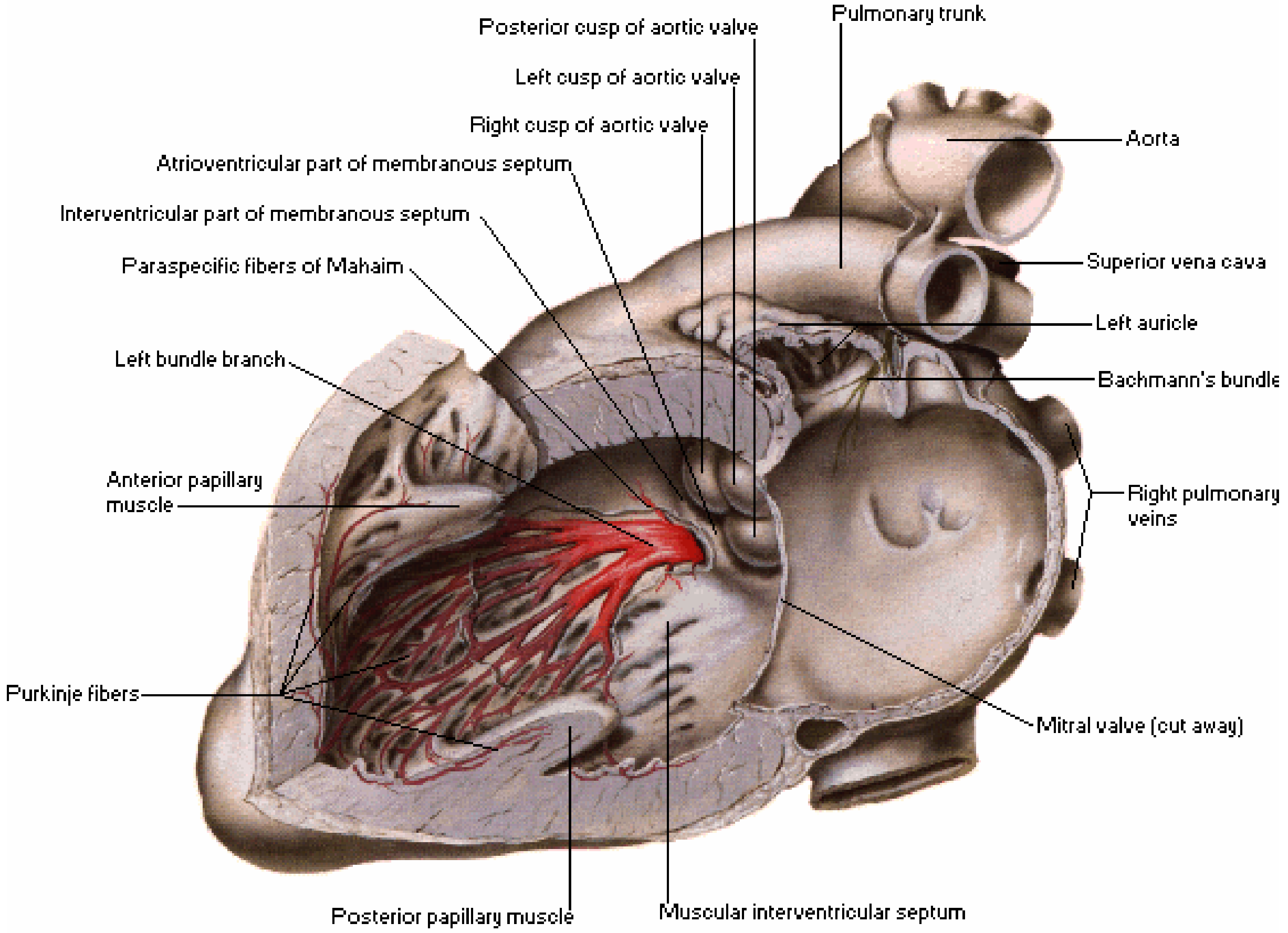
Plane of section

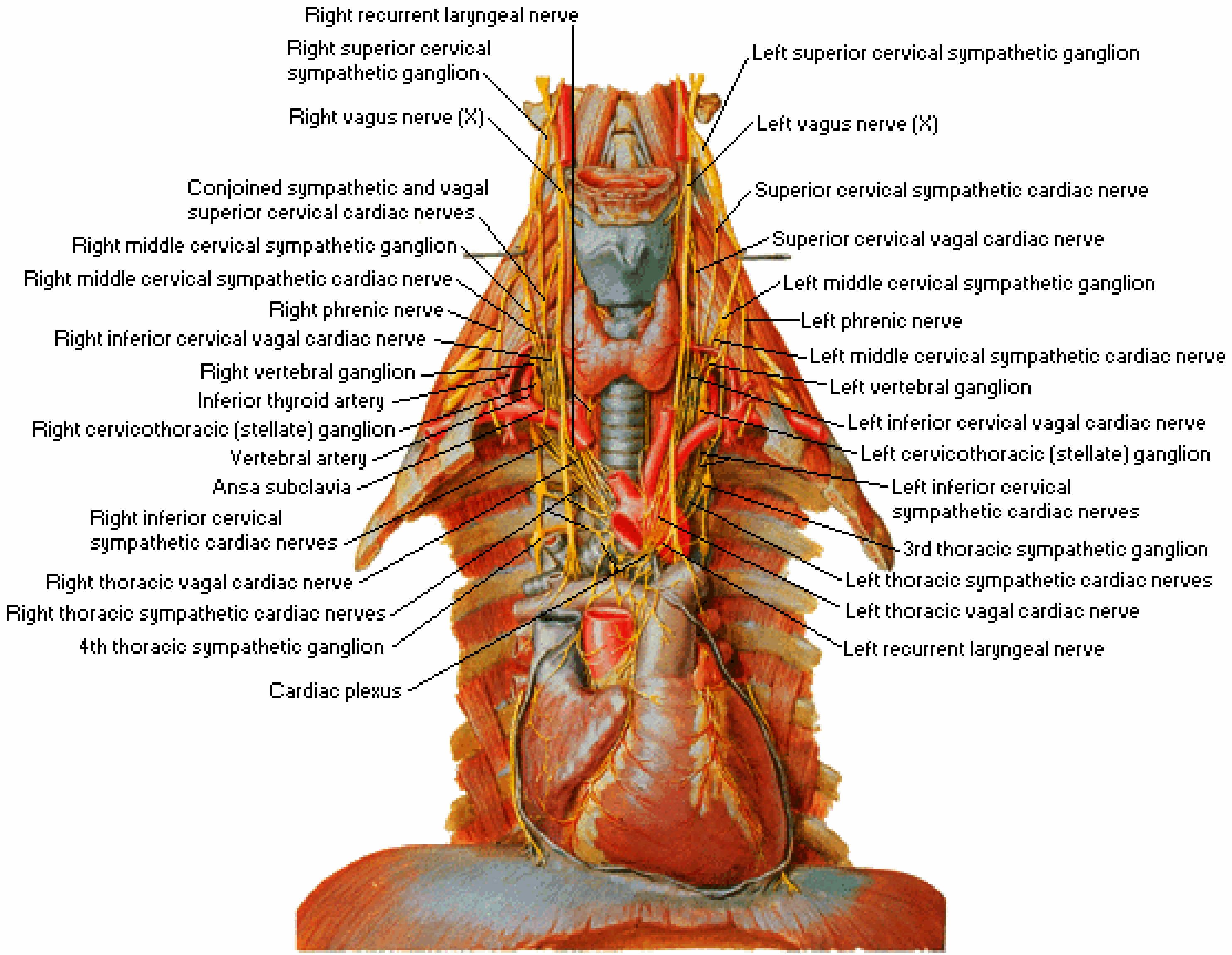
Note: broken line indicates line of attachment of septal leaflet of tricuspid valve.

Conducting System of Heart
Right Side



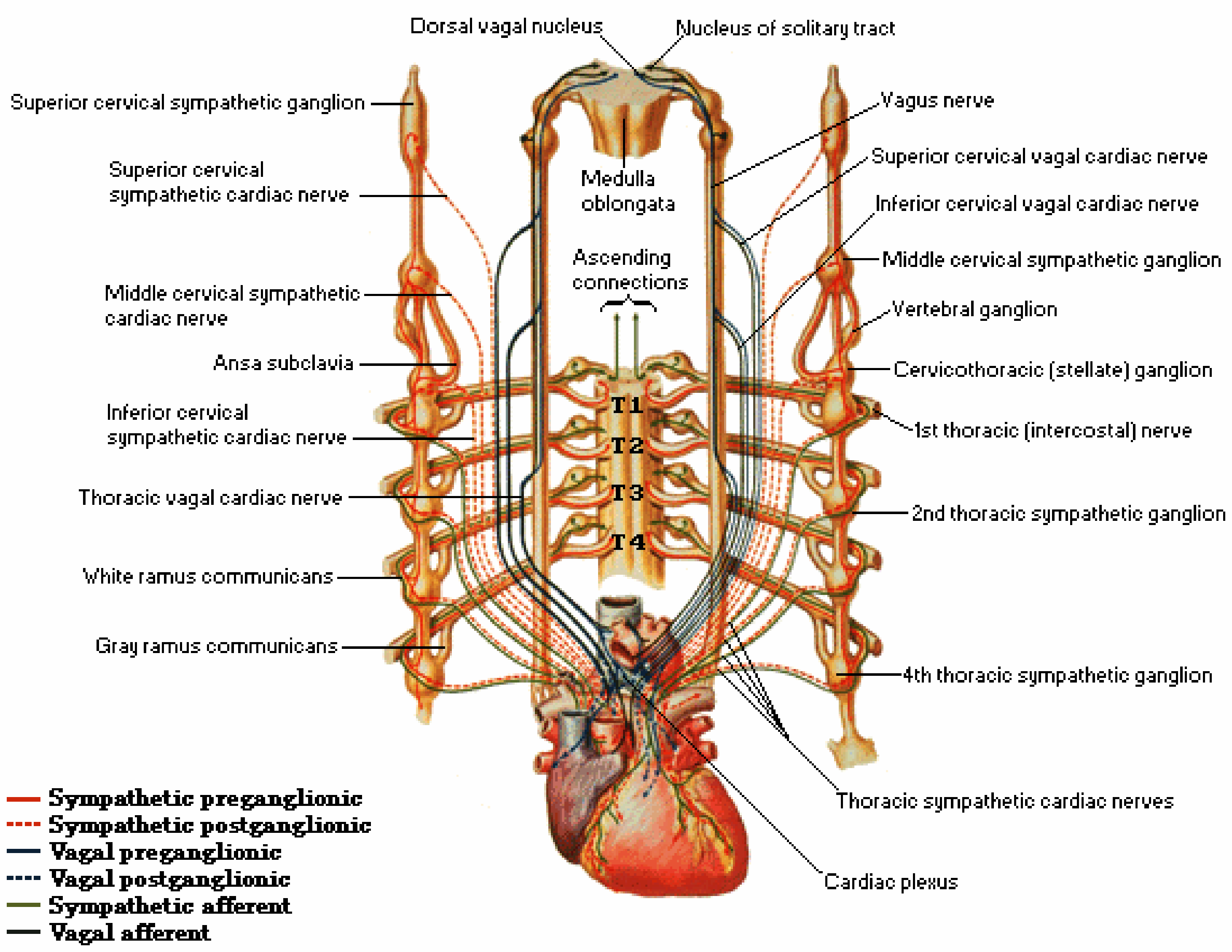
Left Side


Posterior cusp of aortic valve
Pulmonary trunk
Left cusp of aortic valve
Right cusp of aortic valve
Aorta
Atrioventricular part of membranous septum
Interventricular part of membranous septum
Superior vena cava
Paraspecific fibers of Mahaim
Left auricle
Left bundle branch
Bachmann's bundle
Anterior papillary muscle
Right pulmonary veins
Purkinje fibers
Mitral valve (cut away)
Posterior papillary muscle
Muscular interventricular septum



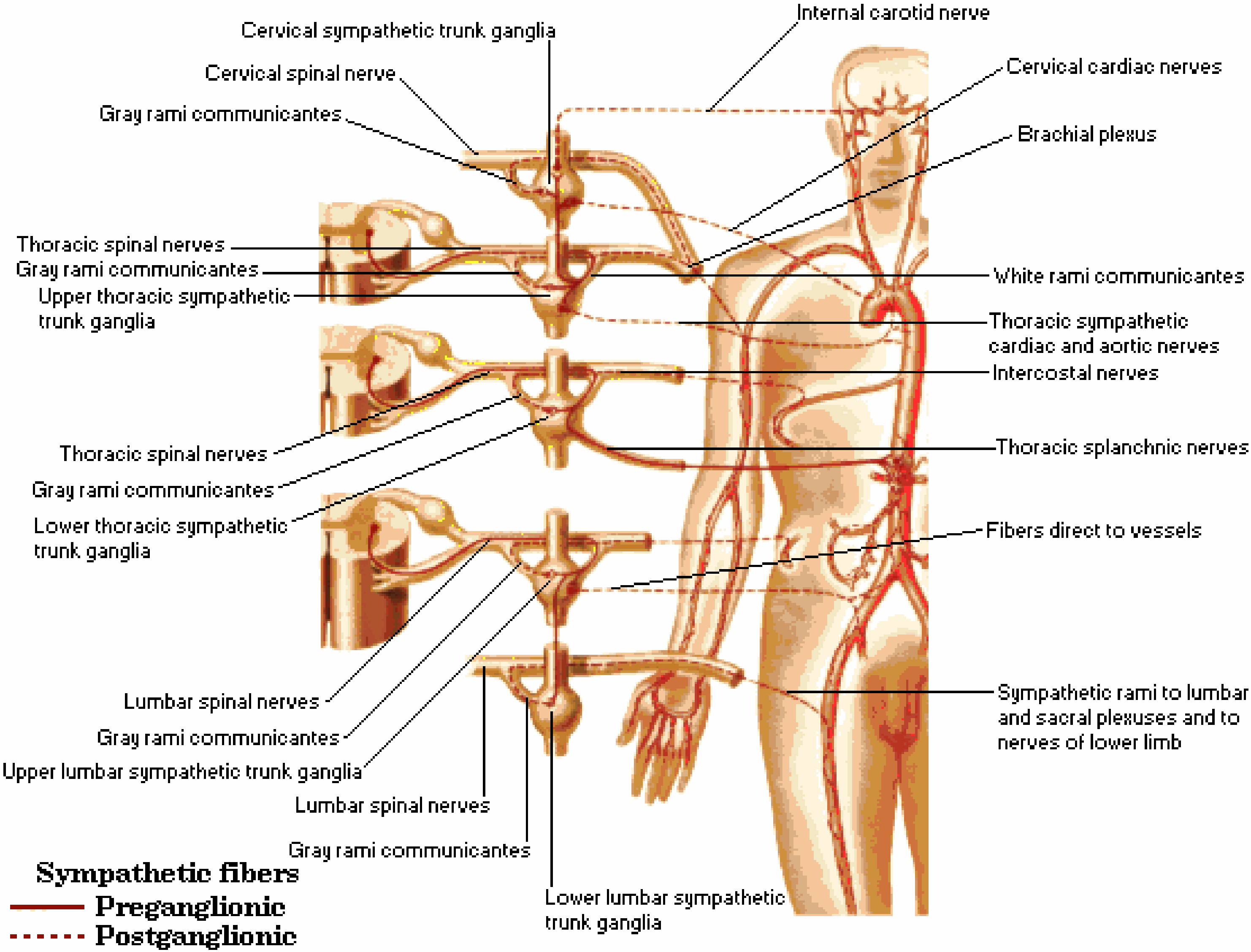
Right recurrent laryngeal nerve
Right superior cervical sympathetic ganglion
Right vagus nerve (X)
Conjoined sympathetic and vagal superior cervical cardiac nerves
Right middle cervical sympathetic ganglion
Right middle cervical sympathetic cardiac nerve
Right phrenic nerve
Right inferior cervical vagal cardiac nerve
Right vertebral ganglion
Inferior thyroid artery
Right cervicothoracic (stellate) ganglion
Vertebral artery
Ansa subclavia
Right inferior cervical sympathetic cardiac nerves
Right thoracic vagal cardiac nerve
Right thoracic sympathetic cardiac nerves
4th thoracic sympathetic ganglion
Cardiac plexus
Left superior cervical sympathetic ganglion
Left vagus nerve (X)
Superior cervical sympathetic cardiac nerve
Superior cervical vagal cardiac nerve
Left middle cervical sympathetic ganglion
Left phrenic nerve
Left middle cervical sympathetic cardiac nerve
Left vertebral ganglion
Left inferior cervical vagal cardiac nerve
Left cervicothoracic (stellate) ganglion
Left inferior cervical sympathetic cardiac nerves
3rd thoracic sympathetic ganglion
Left thoracic sympathetic cardiac nerves
Left thoracic vagal cardiac nerve
Left recurrent laryngeal nerve

Schema

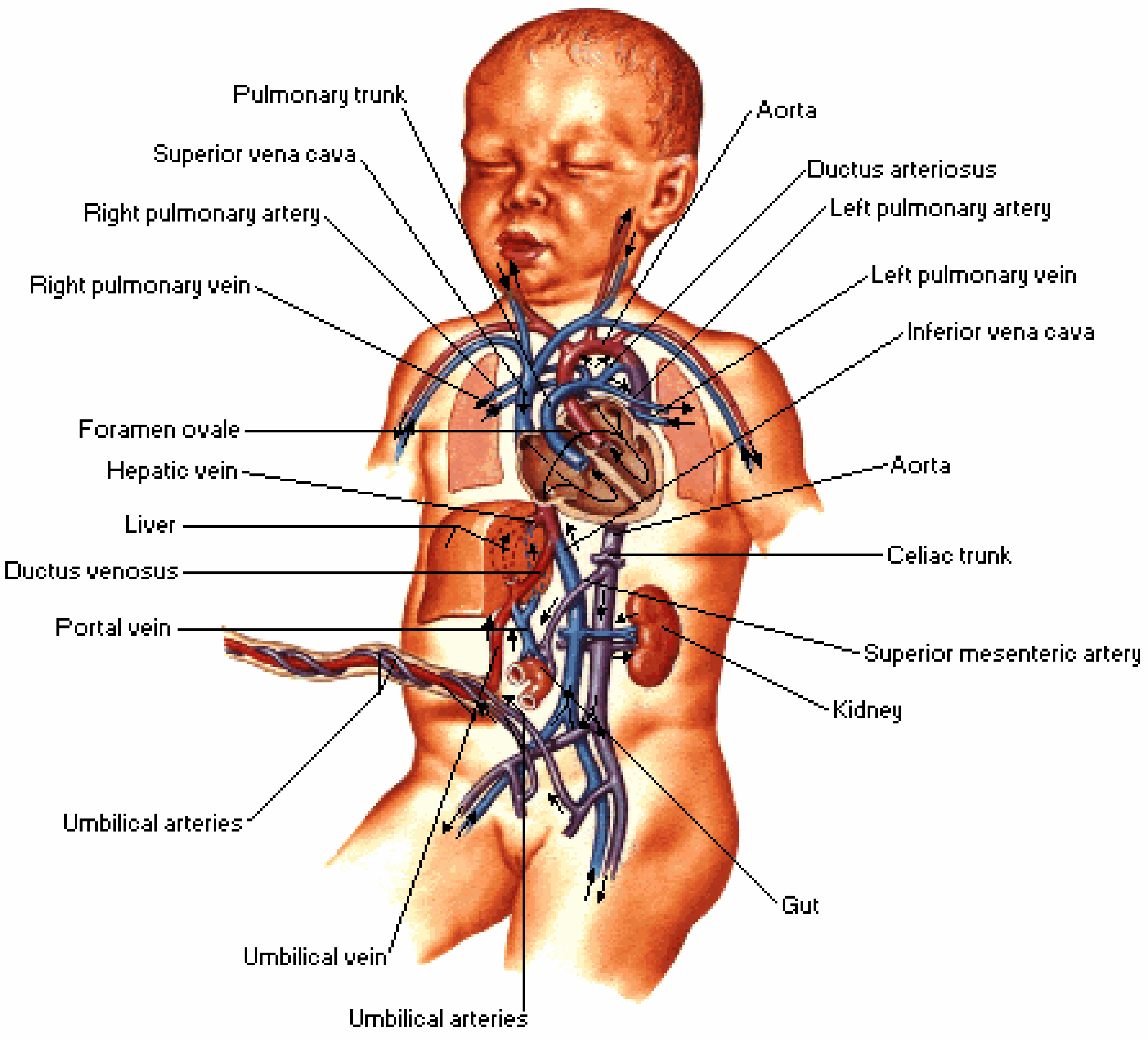


Dorsal vagal nucleus
Nucleus of solitary tract
Superior cervical sympathetic ganglion
Vagus nerve
Superior cervical sympathetic cardiac nerve
Superior cervical vagal cardiac nerve
Medulla oblongata
Inferior cervical vagal cardiac nerve
Ascending connections
Middle cervical sympathetic ganglion
Middle cervical sympathetic cardiac nerve
Vertebral ganglion
Ansa subclavia
Cervicothoracic (stellate) ganglion
Inferior cervical sympathetic cardiac nerve
T1
T2
T3
T4
1st thoracic (intercostal) nerve
Thoracic vagal cardiac nerve
2nd thoracic sympathetic ganglion
White ramus communicans
Gray ramus communicans
4th thoracic sympathetic ganglion
Thoracic sympathetic cardiac nerves
Cardiac plexus
Sympathetic preganglionic
Sympathetic postganglionic
Vagal preganglionic
Vagal postganglionic
Sympathetic afferent
Vagal afferent

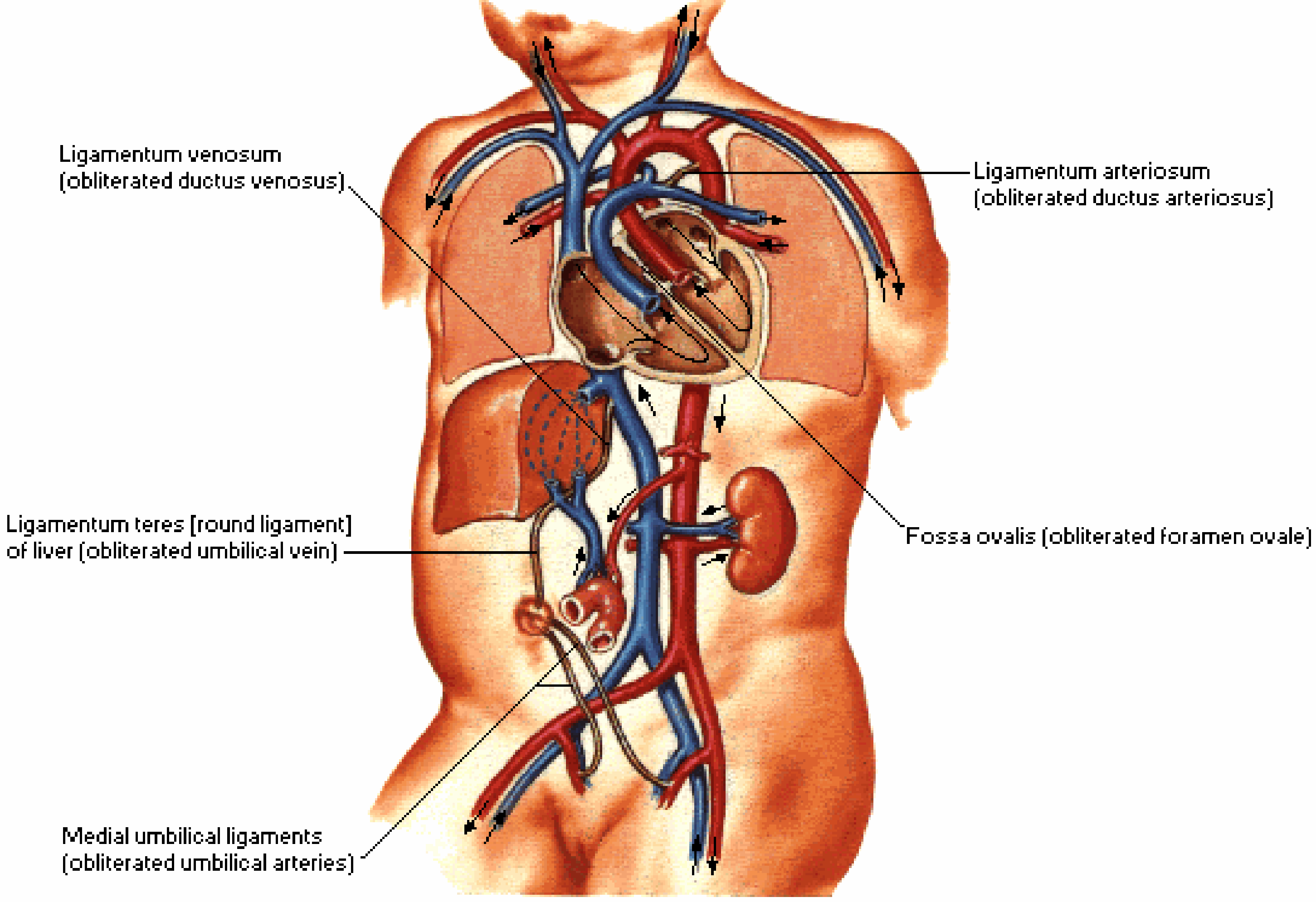
Schema



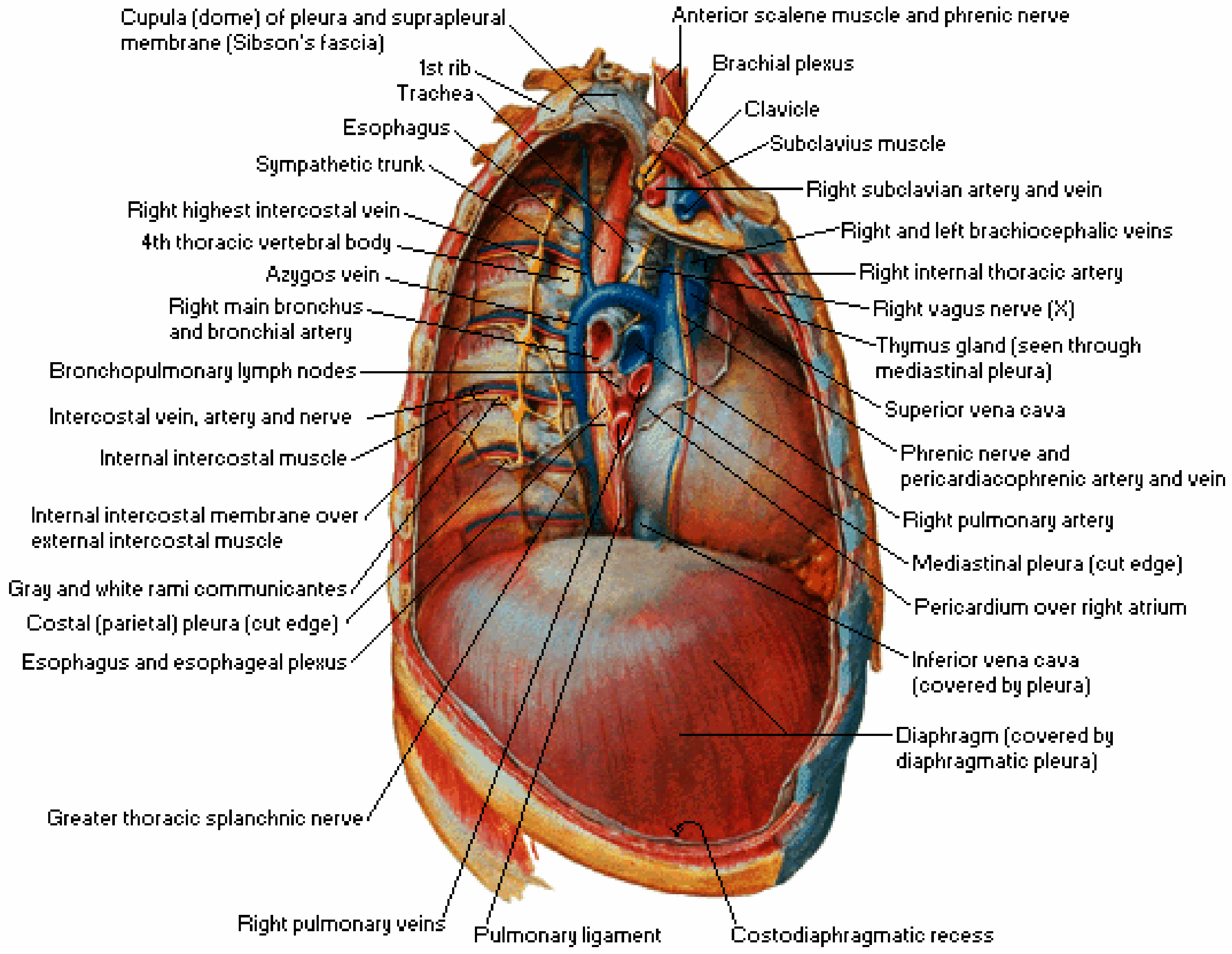
Internal carotid nerve
Cervical sympathetic trunk ganglia
Cervical spinal nerve
Gray rami communicantes
Cervical cardiac nerves
Brachial plexus
Thoracic spinal nerves
Gray rami communicantes
Upper thoracic sympathetic trunk ganglia
White rami communicantes
Thoracic sympathetic cardiac and aortic nerves
Intercostal nerves
Thoracic spinal nerves
Gray rami communicantes
Lower thoracic sympathetic trunk ganglia
Thoracic splanchnic nerves
Fibers direct to vessels
Lumbar spinal nerves
Gray rami communicantes
Upper lumbar sympathetic trunk ganglia
Lumbar spinal nerves
Gray rami communicantes
Lower lumbar sympathetic trunk ganglia
Sympathetic rami to lumbar and sacral plexuses and to nerves of lower limb
Sympathetic fibers
Preganglionic
Postganglionic



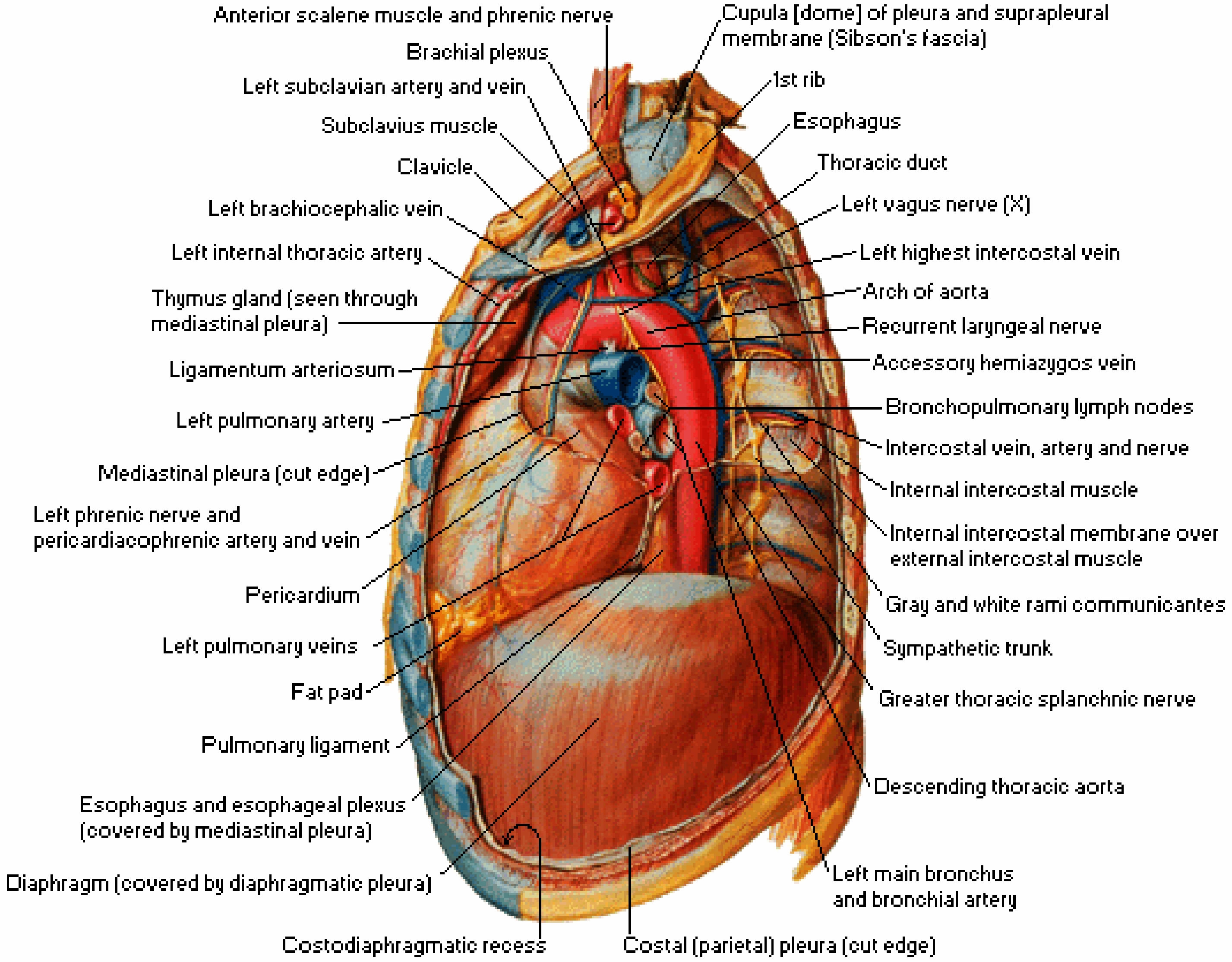
Pulmonary trunk
Superior vena cava
Right pulmonary artery
Right pulmonary vein
Foramen ovale
Hepatic vein
Liver
Ductus venosus
Portal vein
Umbilical arteries
Umbilical vein
Umbilical arteries
Aorta
Ductus arteriosus
Left pulmonary artery
Left pulmonary vein
Inferior vena cava
Aorta
Celiac trunk
Superior mesenteric artery
Kidney
Gut

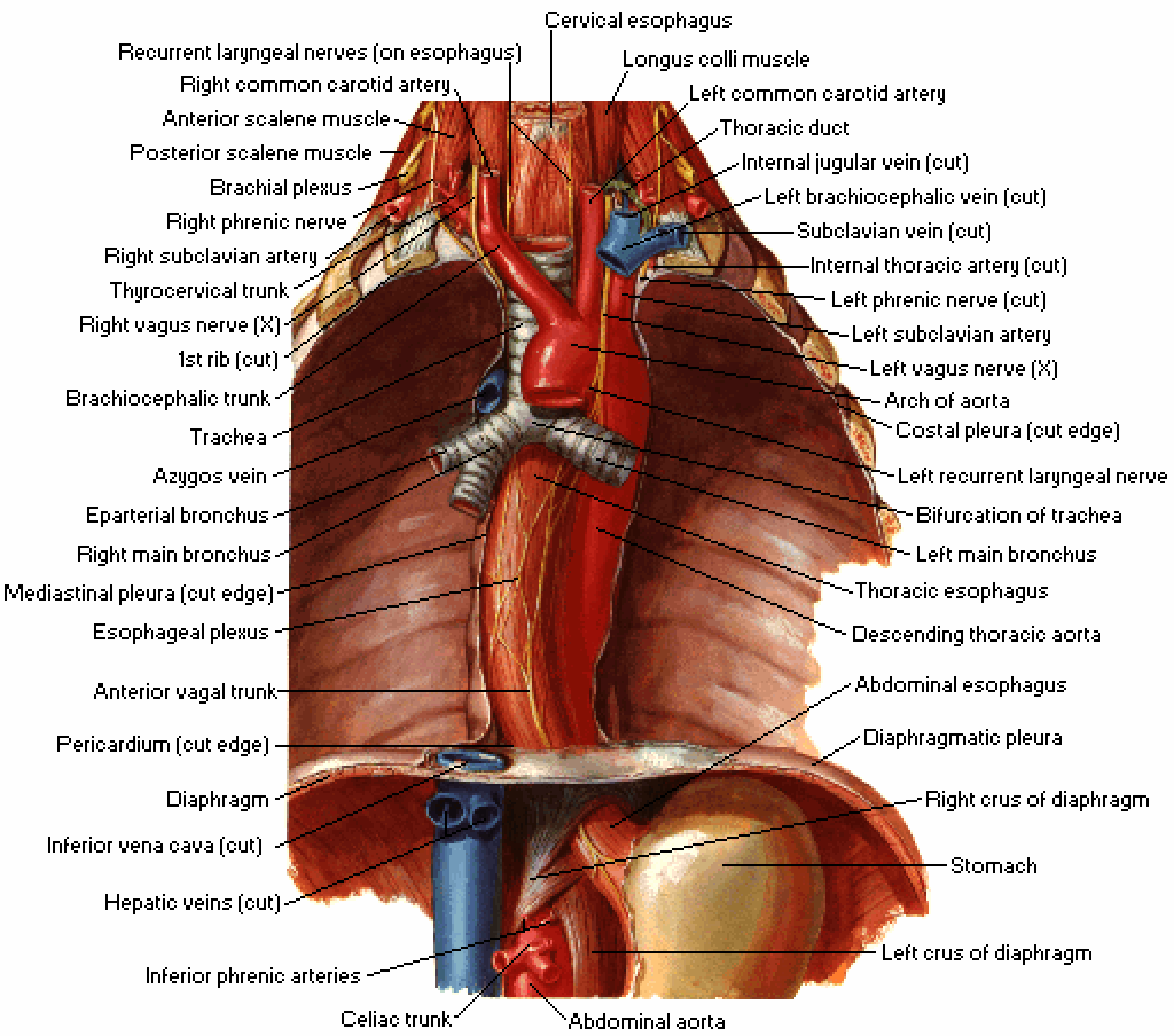

Ligamentum venosum
(obliterated ductus venosus)
Ligamentum arteriosum
(obliterated ductus arteriosus)
Ligamentum teres [round ligament]
of liver (obliterated umbilical vein)
Fossa ovalis (obliterated foramen ovale)
Medial umbilical ligaments
(obliterated umbilical arteries)

Right Lateral View



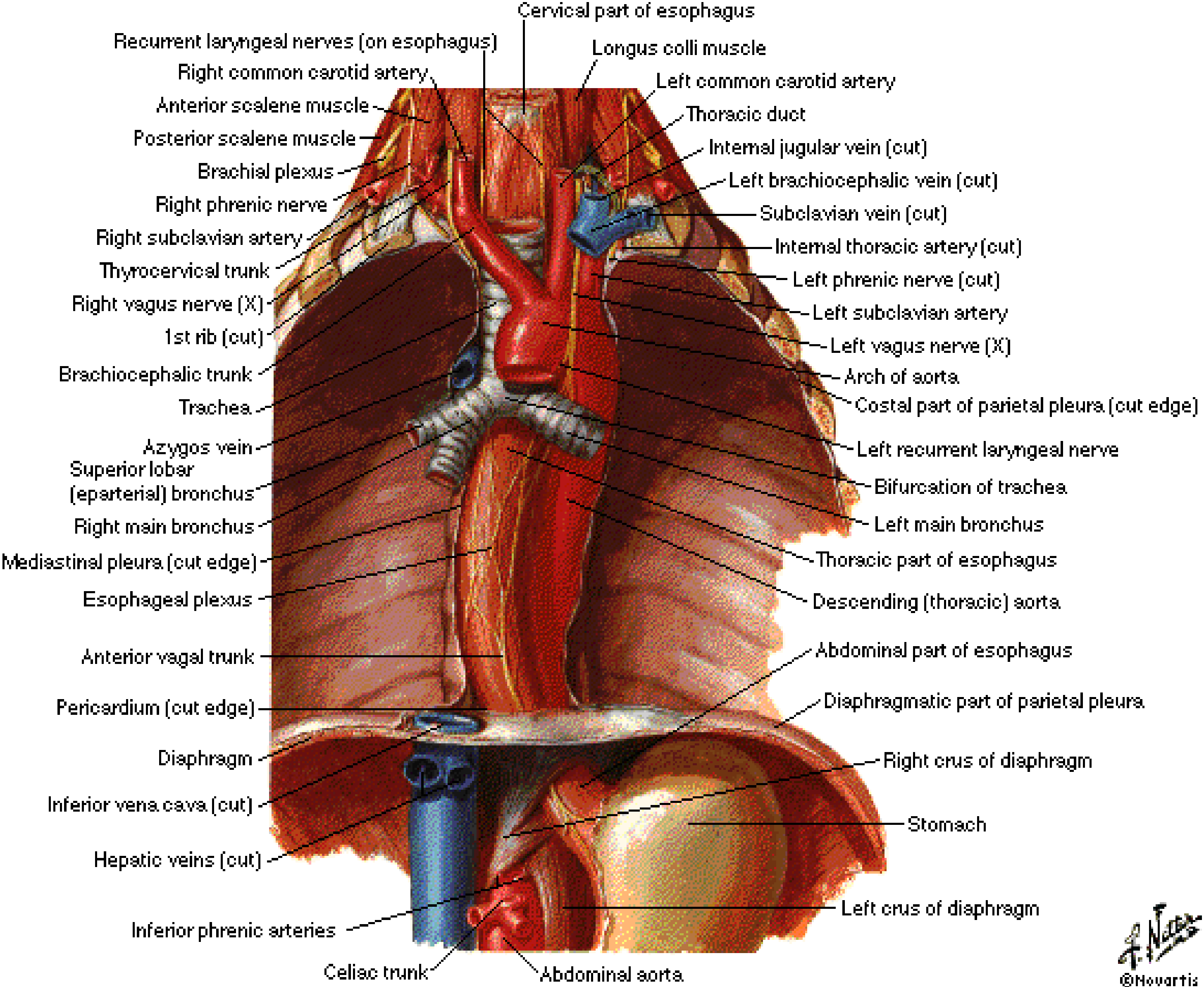
Left Lateral View



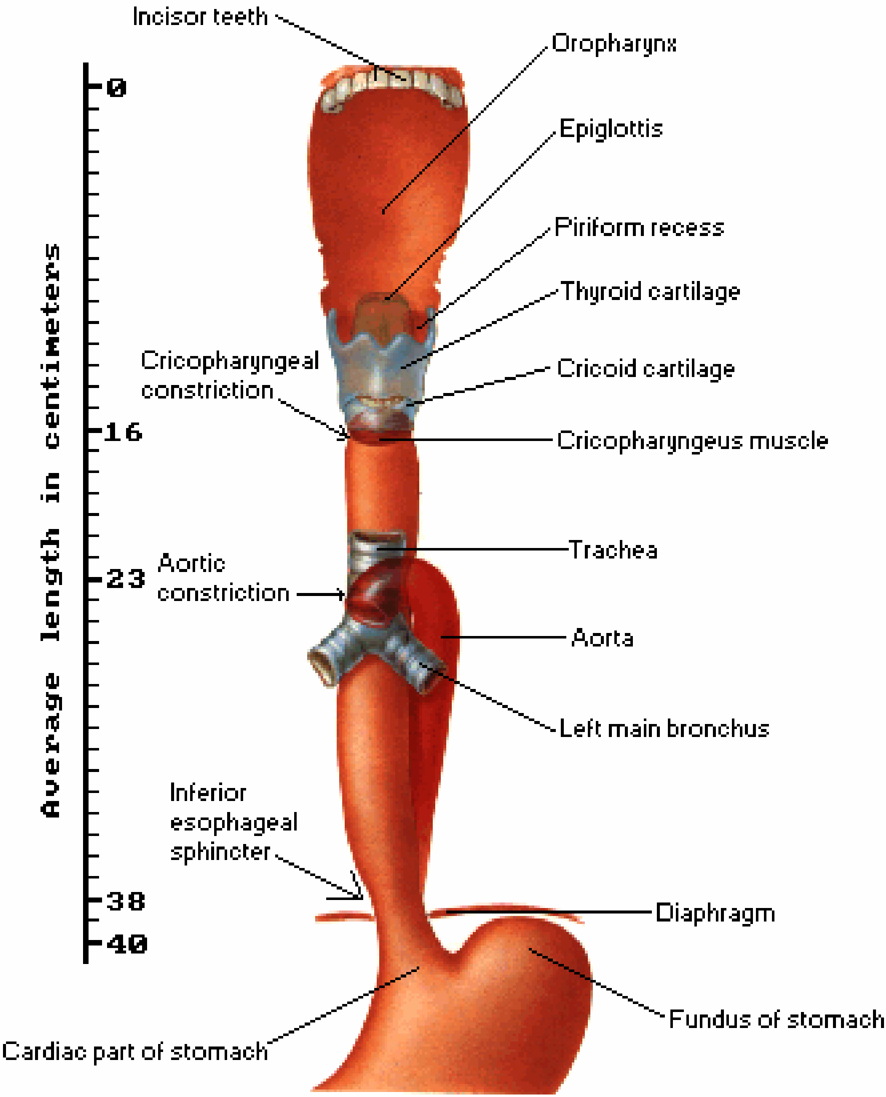


Cervical esophagus
Recurrent laryngeal nerves (on esophagus)
Longus colli muscle
Right common carotid artery
Left common carotid artery
Anterior scalene muscle
Thoracic duct
Posterior scalene muscle
Internal jugular vein (cut)
Brachial plexus
Left brachiocephalic vein (cut)
Right phrenic nerve
Subclavian vein (cut)
Right subclavian artery
Internal thoracic artery (cut)
Thyrocervical trunk
Left phrenic nerve (cut)
Right vagus nerve (X)
Left subclavian artery
1st rib (cut)
Left vagus nerve (X)
Brachiocephalic trunk
Arch of aorta
Costal pleura (cut edge)
Trachea
Azygos vein
Left recurrent laryngeal nerve
Eparterial bronchus
Bifurcation of trachea
Right main bronchus
Left main bronchus
Mediastinal pleura (cut edge)
Thoracic esophagus
Esophageal plexus
Descending thoracic aorta
Anterior vagal trunk
Abdominal esophagus
Pericardium (cut edge)
Diaphragmatic pleura
Diaphragm
Right crus of diaphragm
Inferior vena cava (cut)
Stomach
Hepatic veins (cut)
Left crus of diaphragm
Inferior phrenic arteries
Celiac trunk
Abdominal aorta

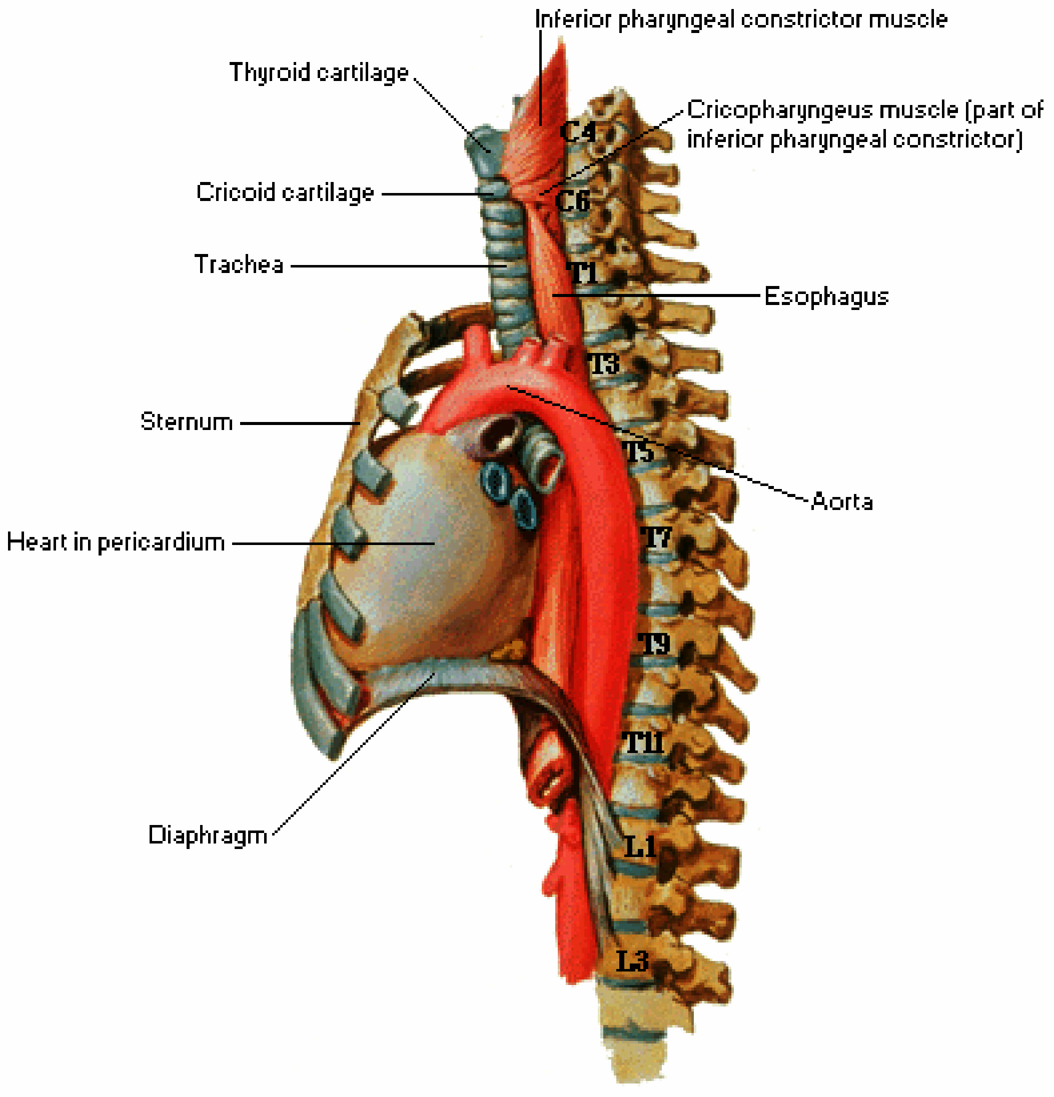
Esophagus in Situ

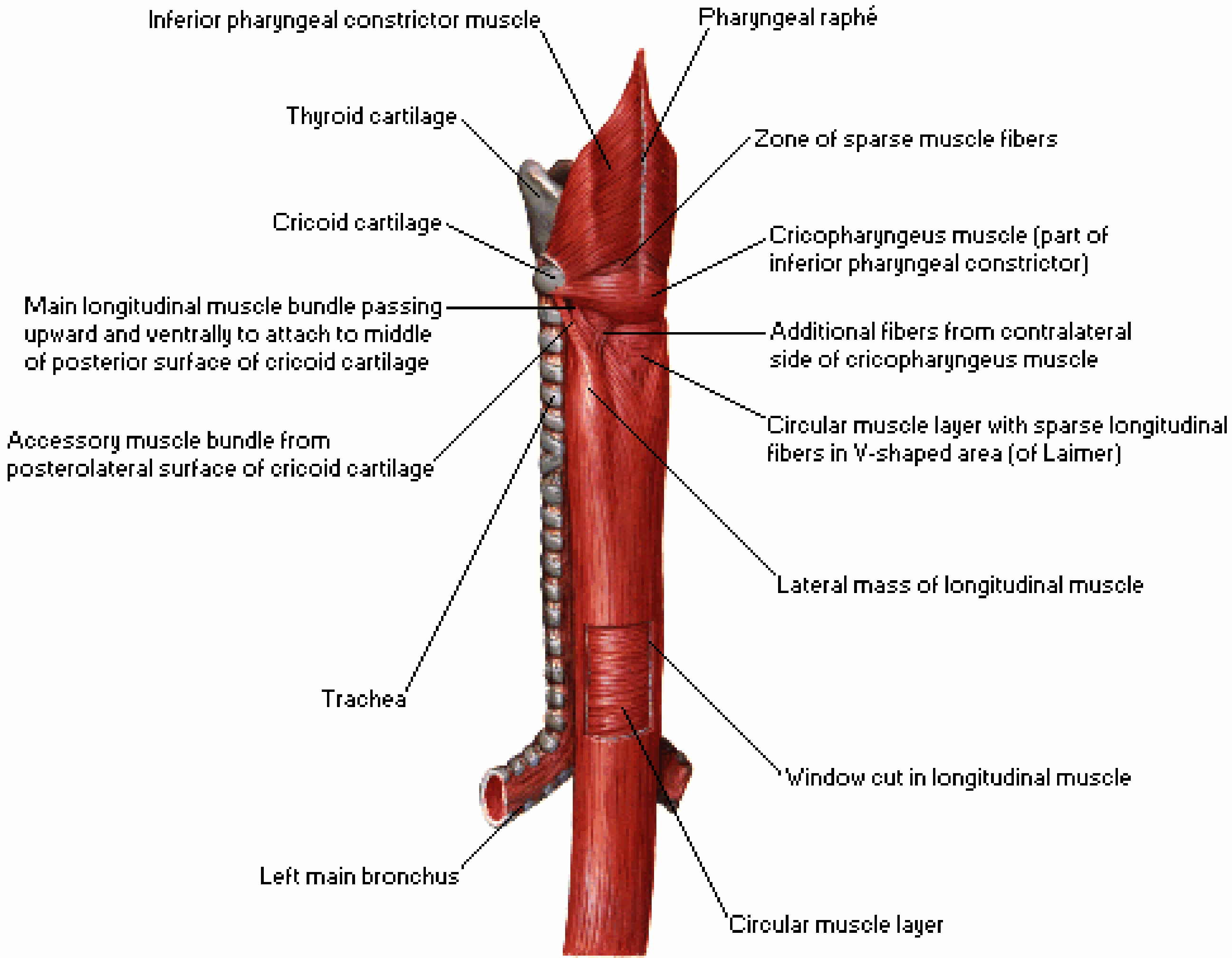


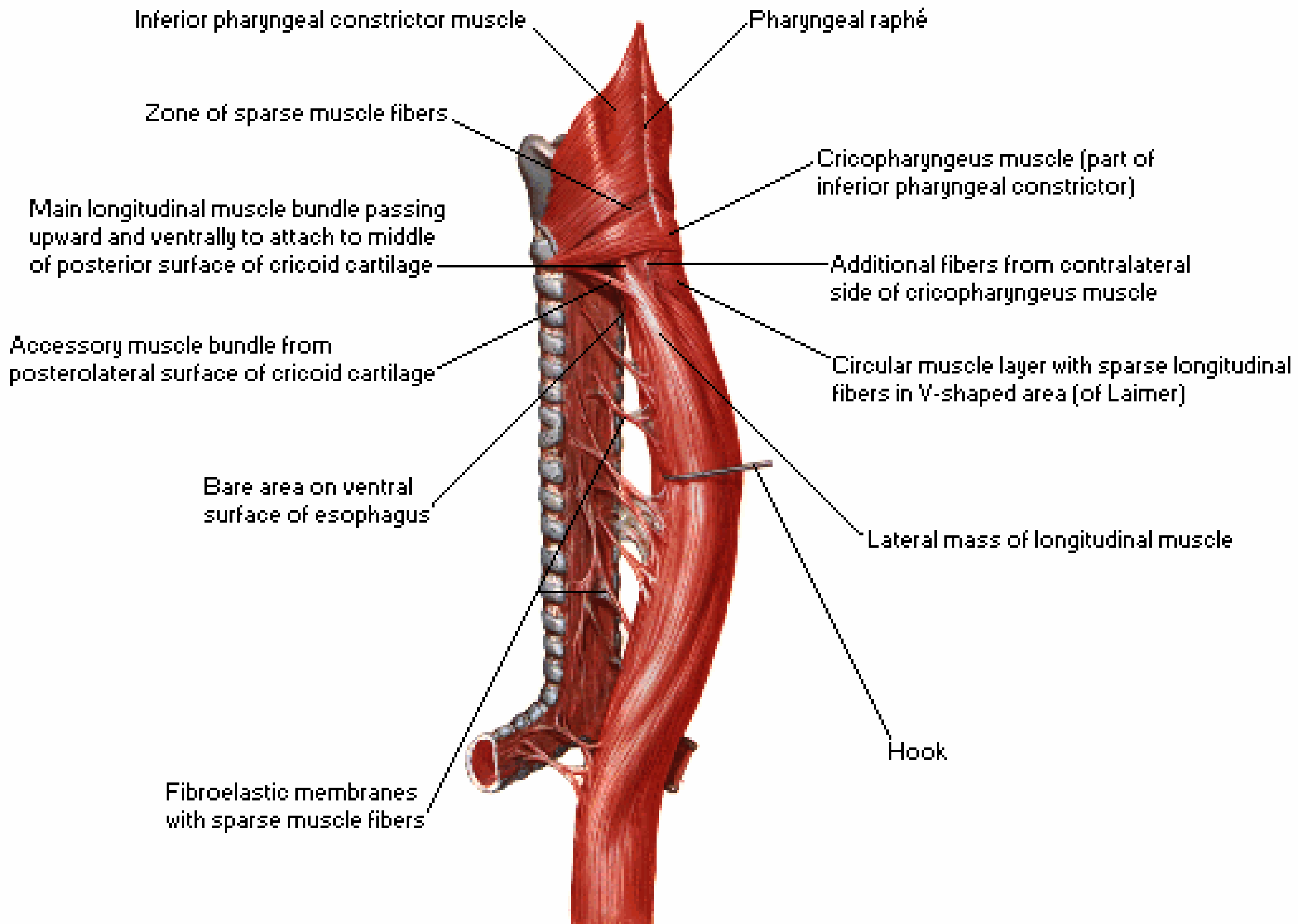
Schema - Anterior View

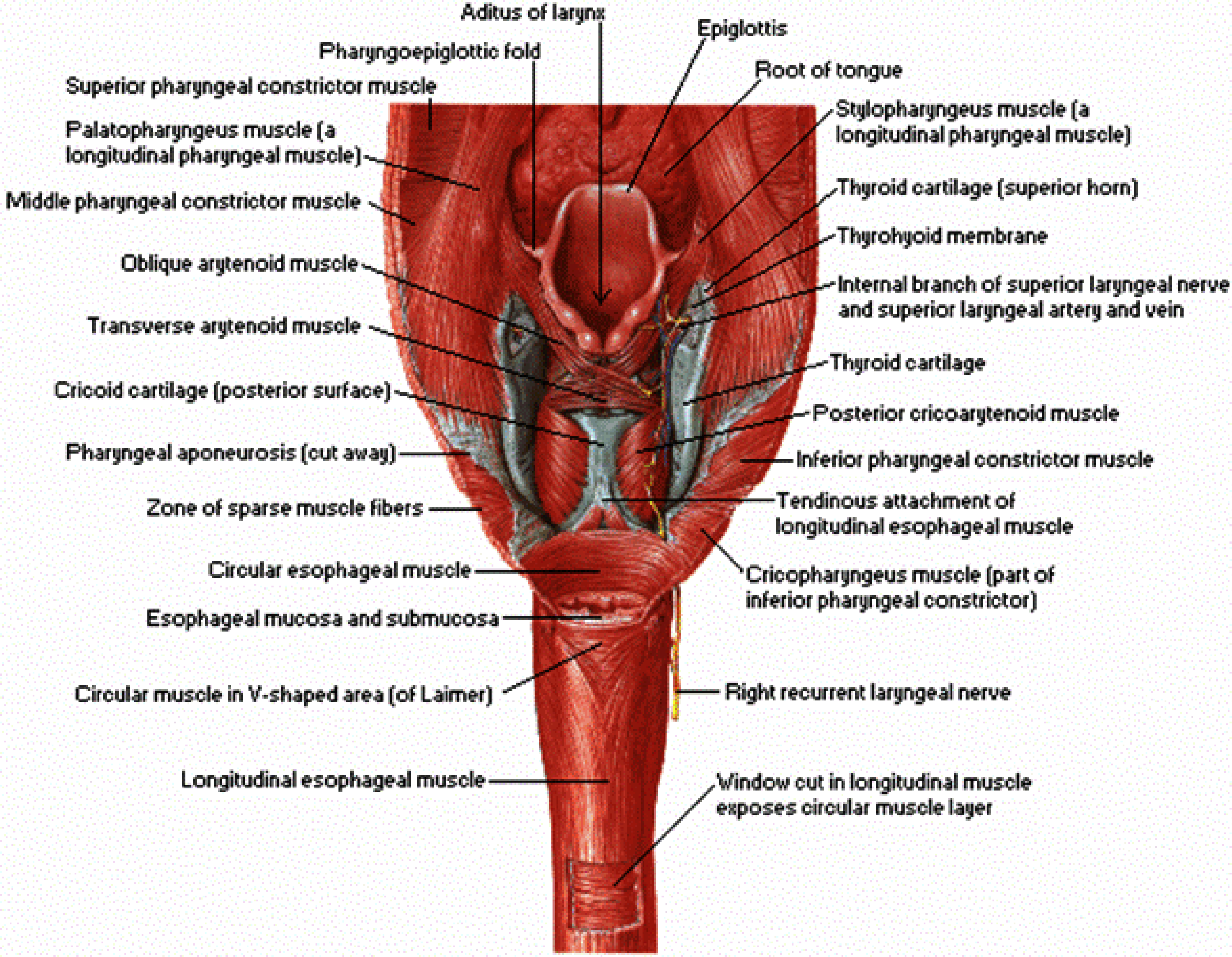


Lateral View



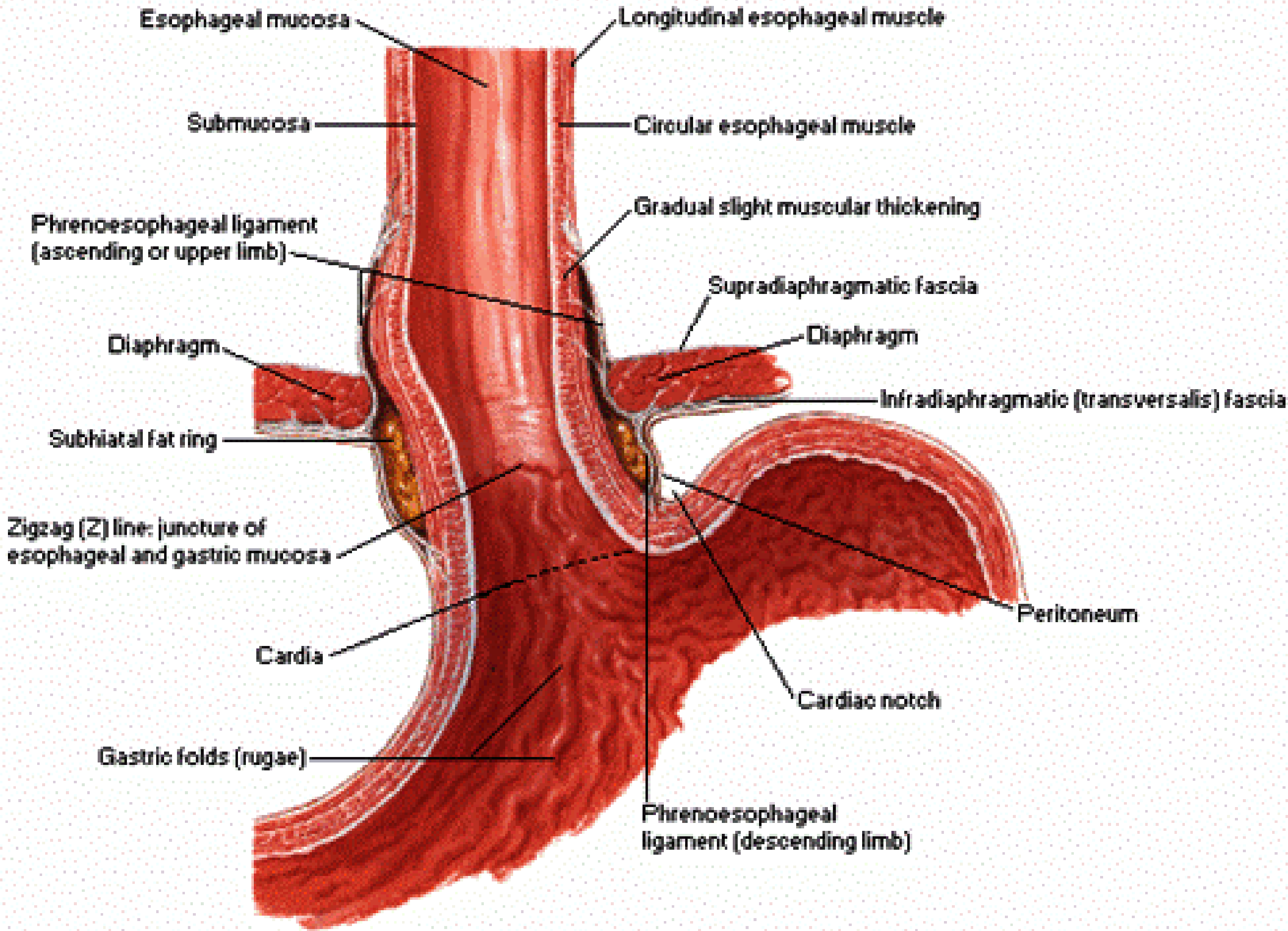

Inferior pharyngeal constrictor muscle
Pharyngeal raphé
Thyroid cartilage
Zone of sparse muscle fibers
Cricoid cartilage
Cricopharyngeus muscle (part of inferior pharyngeal constrictor)
Main longitudinal muscle bundle passing upward and ventrally to attach to middle of posterior surface of cricoid cartilage
Additional fibers from contralateral side of cricopharyngeus muscle
Circular muscle layer with sparse longitudinal fibers in V-shaped area (of Laimer)
Accessory muscle bundle from posterolateral surface of cricoid cartilage
Lateral mass of longitudinal muscle
Trachea
Window cut in longitudinal muscle
Left main bronchus
Circular muscle layer


Inferior pharyngeal constrictor muscle
Pharyngeal raphé
Zone of sparse muscle fibers
Cricopharyngeus muscle (part of inferior pharyngeal constrictor)
Main longitudinal muscle bundle passing upward and ventrally to attach to middle of posterior surface of cricoid cartilage
Additional fibers from contralateral side of cricopharyngeus muscle
Accessory muscle bundle from posterolateral surface of cricoid cartilage
Circular muscle layer with sparse longitudinal fibers in V-shaped area (of Laimer)
Bare area on ventral surface of esophagus
Lateral mass of longitudinal muscle
Hook
Fibroelastic membranes with sparse muscle fibers

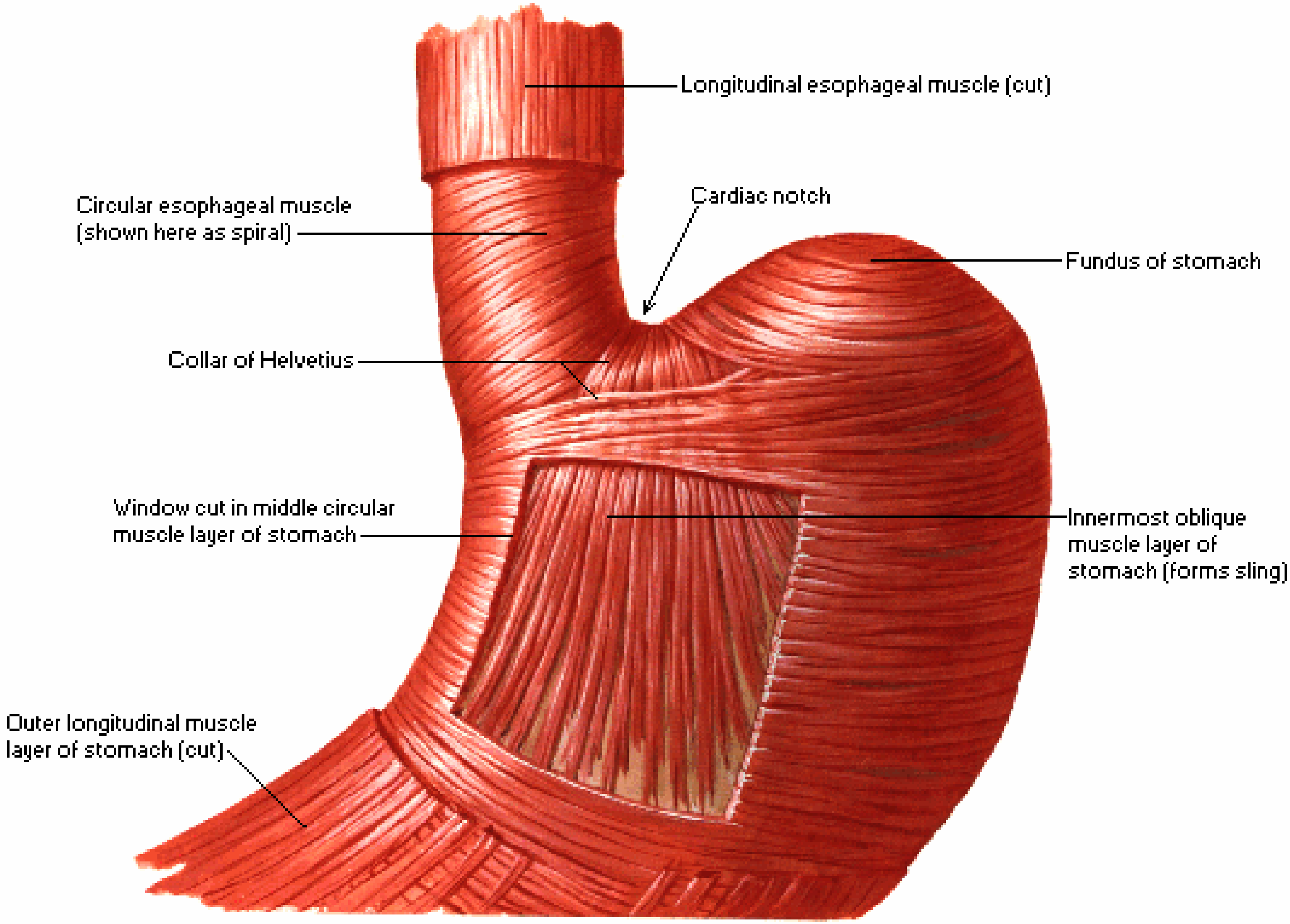


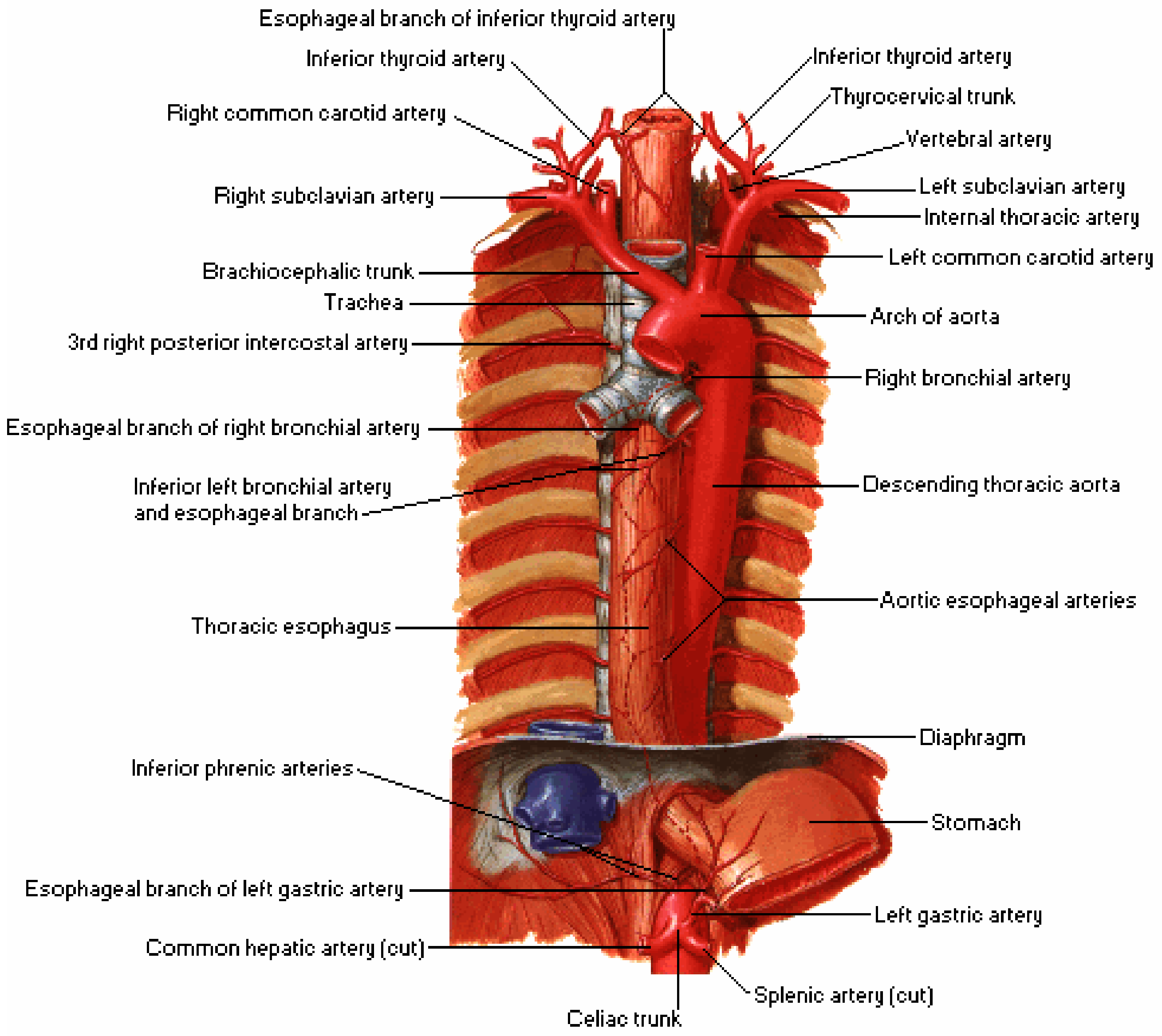
Posterior view with pharynx opened and mucosa removed

Coronal Section

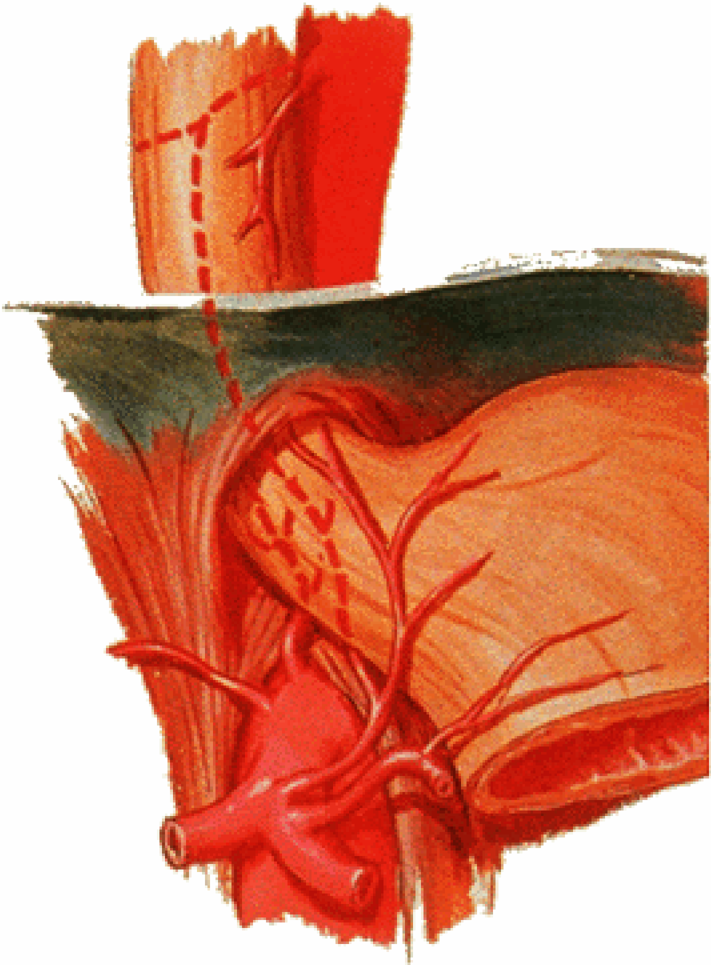


Anterior View

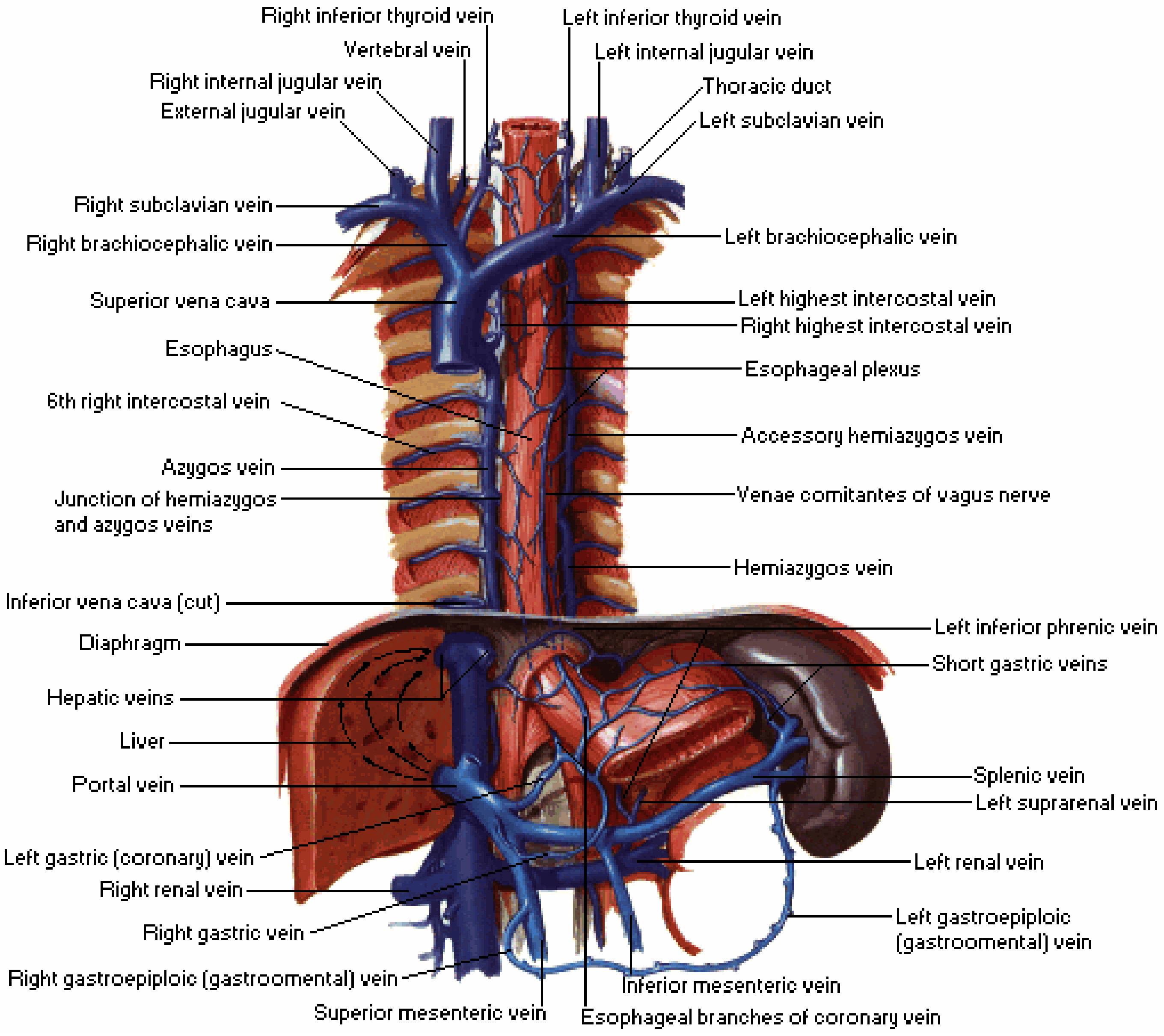



Esophageal branch of inferior thyroid artery
Inferior thyroid artery
Right common carotid artery
Right subclavian artery
Brachiocephalic trunk
Trachea
3rd right posterior intercostal artery
Esophageal branch of right bronchial artery
Inferior left bronchial artery and esophageal branch
Thoracic esophagus
Inferior phrenic arteries
Esophageal branch of left gastric artery
Common hepatic artery (cut)
Celiac trunk
Inferior thyroid artery
Thyrocervical trunk
Vertebral artery
Left subclavian artery
Internal thoracic artery
Left common carotid artery
Arch of aorta
Right bronchial artery
Descending thoracic aorta
Aortic esophageal arteries
Diaphragm
Stomach
Left gastric artery
Splenic artery (cut)

Variations

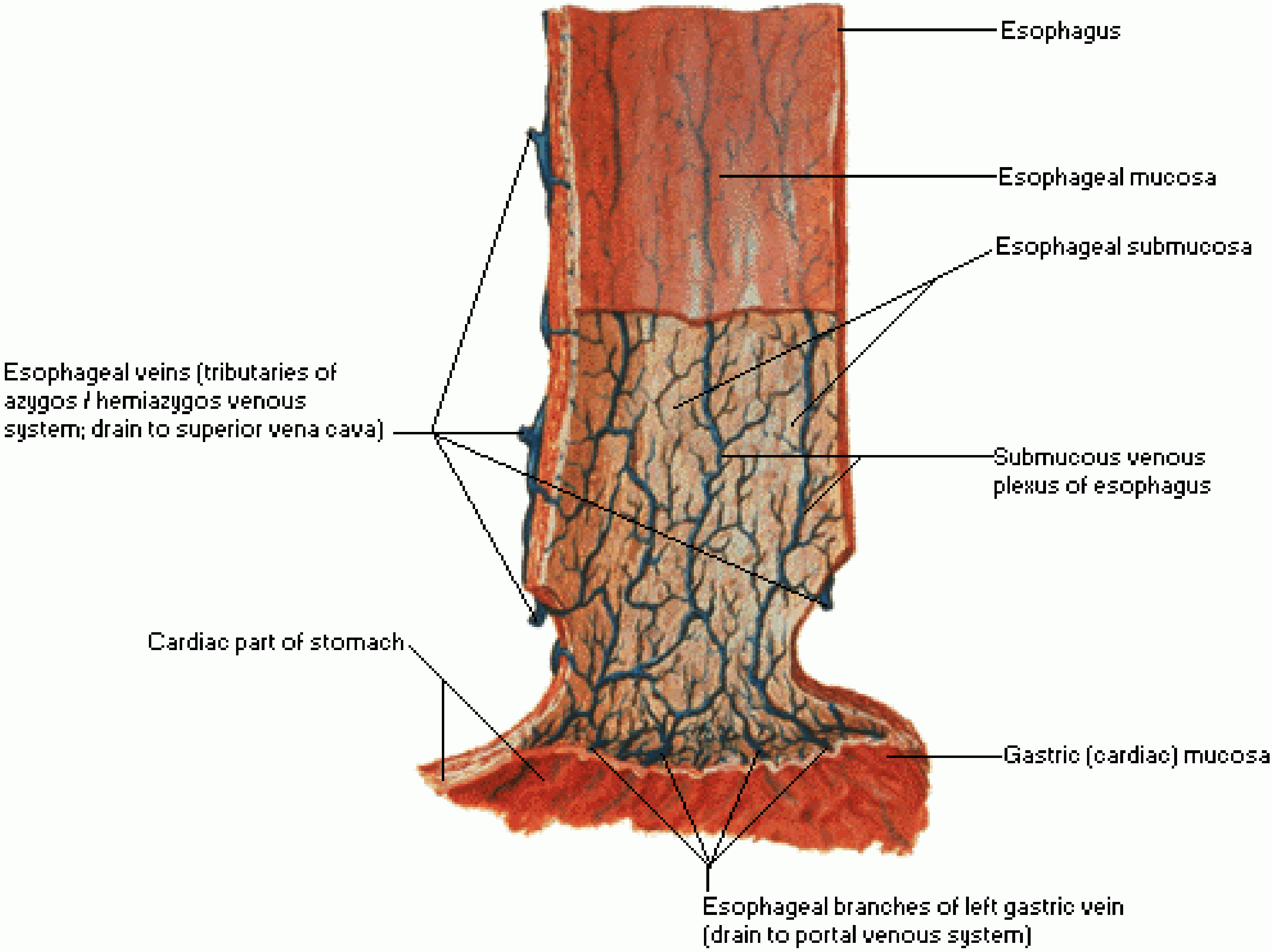


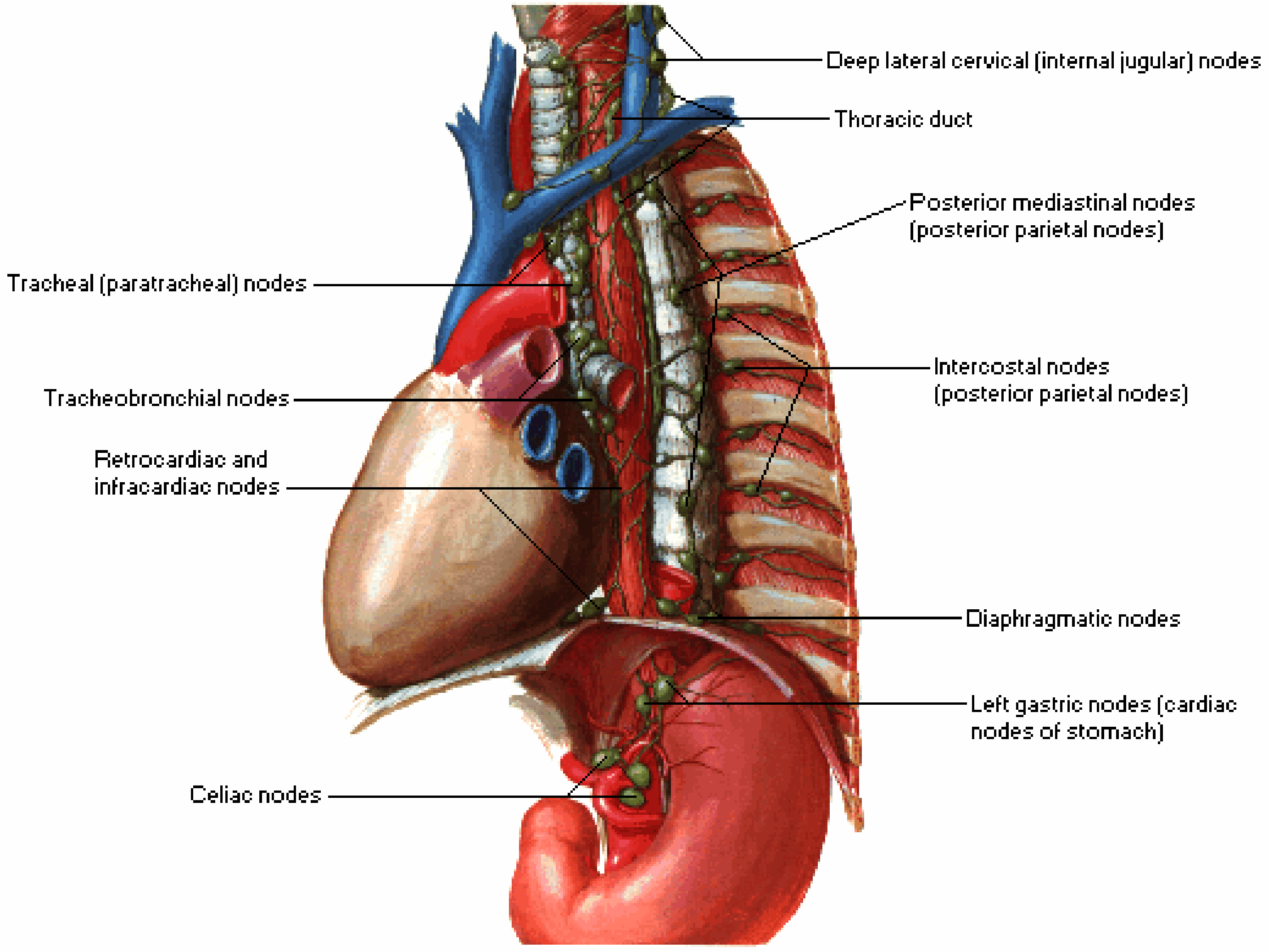
Common variations: Esophageal branches may originate from left inferior phrenic artery and/or directly from celiac trunk. Branches to abdominal esophagus may also come from splenic or short gastric arteries.


Right inferior thyroid vein
Left inferior thyroid vein
Vertebral vein
Left internal jugular vein
Right internal jugular vein
Thoracic duct
External jugular vein
Left subclavian vein
Right subclavian vein
Right brachiocephalic vein
Left brachiocephalic vein
Superior vena cava
Left highest intercostal vein
Right highest intercostal vein
Esophagus
Esophageal plexus
6th right intercostal vein
Accessory hemiazygos vein
Azygos vein
Junction of hemiazygos and azygos veins
Venae comitantes of vagus nerve
Hemiazygos vein
Inferior vena cava (cut)
Left inferior phrenic vein
Diaphragm
Short gastric veins
Hepatic veins
Liver
Portal vein
Splenic vein
Left suprarenal vein
Left gastric (coronary) vein
Left renal vein
Right renal vein
Left gastroepiploic (gastroomental) vein
Right gastric vein
Right gastroepiploic (gastroomental) vein
Inferior mesenteric vein
Superior mesenteric vein
Esophageal branches of coronary vein

Veins of Esophagus

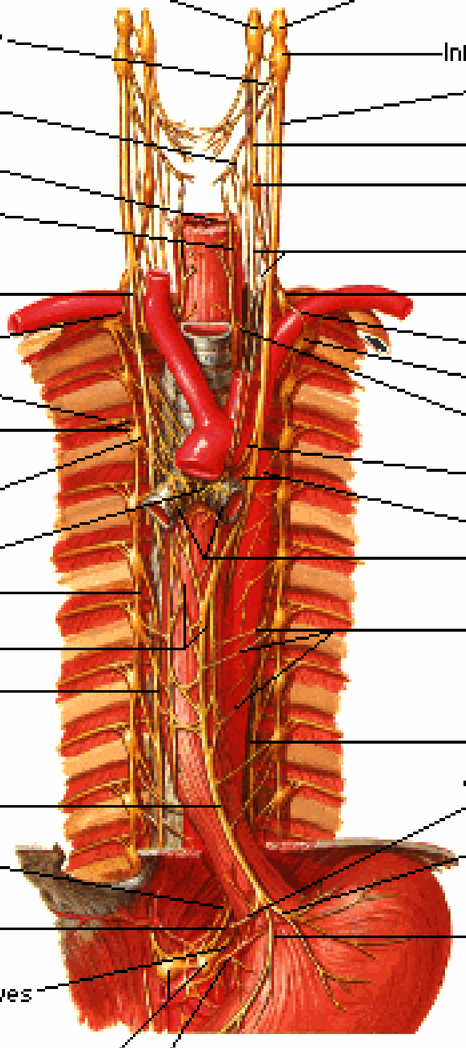
Submucous Venous Plexus



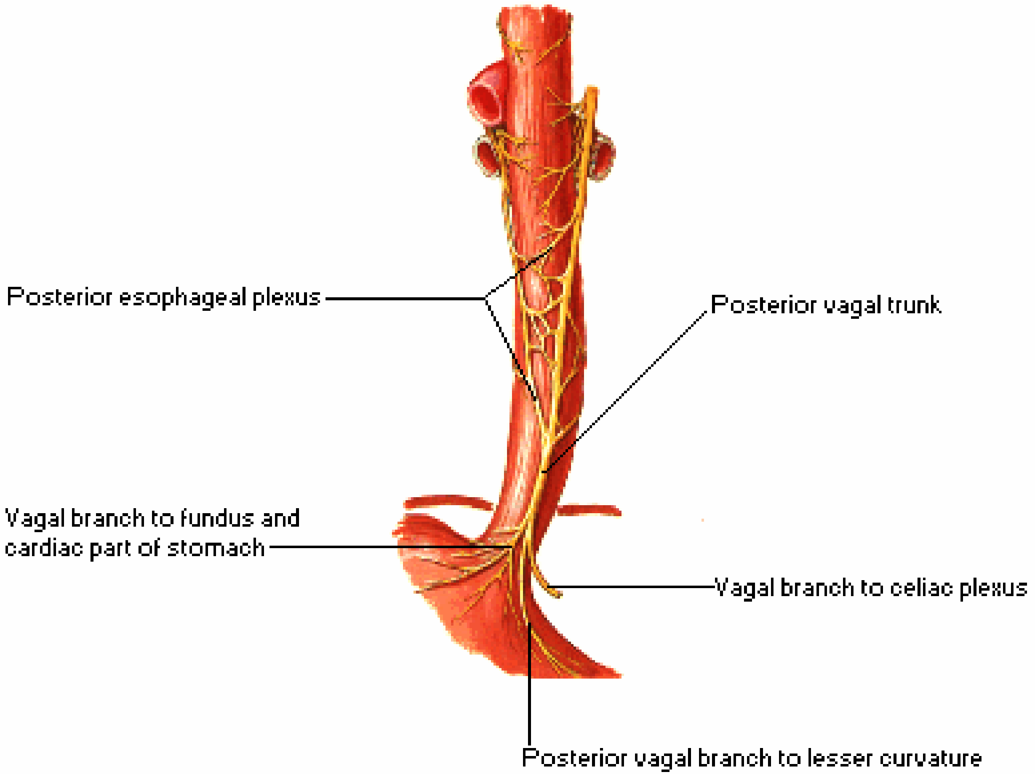


Deep lateral cervical (internal jugular) nodes
Thoracic duct
Posterior mediastinal nodes (posterior parietal nodes)
Tracheal (paratracheal) nodes
Intercostal nodes (posterior parietal nodes)
Tracheobronchial nodes
Retrocardiac and infracardiac nodes
Diaphragmatic nodes
Left gastric nodes (cardiac nodes of stomach)
Celiac nodes

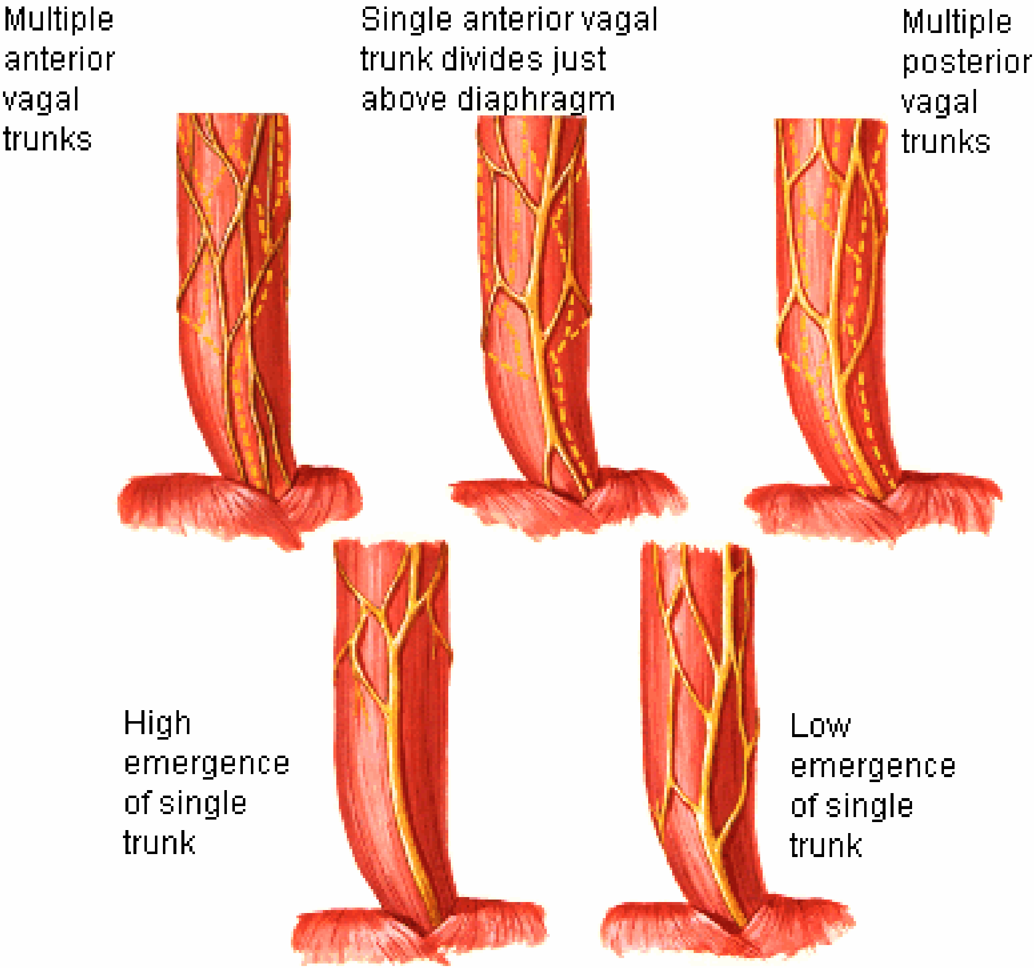
Anterior View



Posterior View

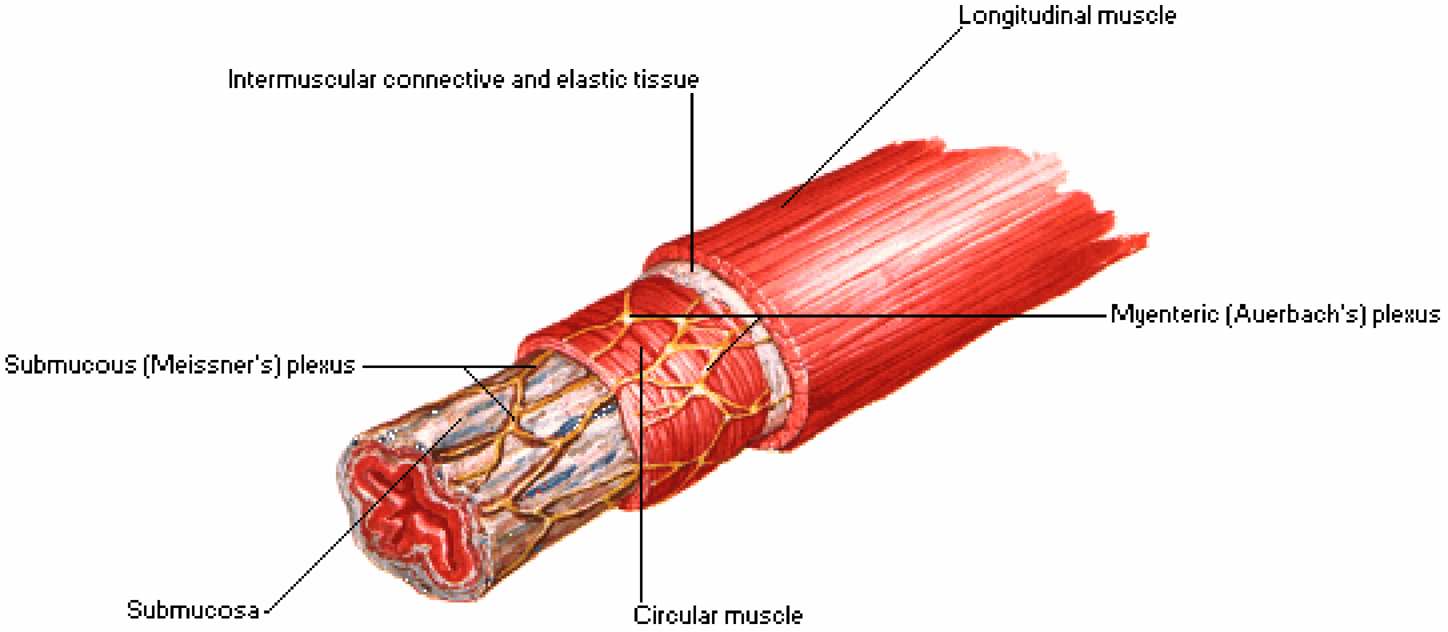


Variations

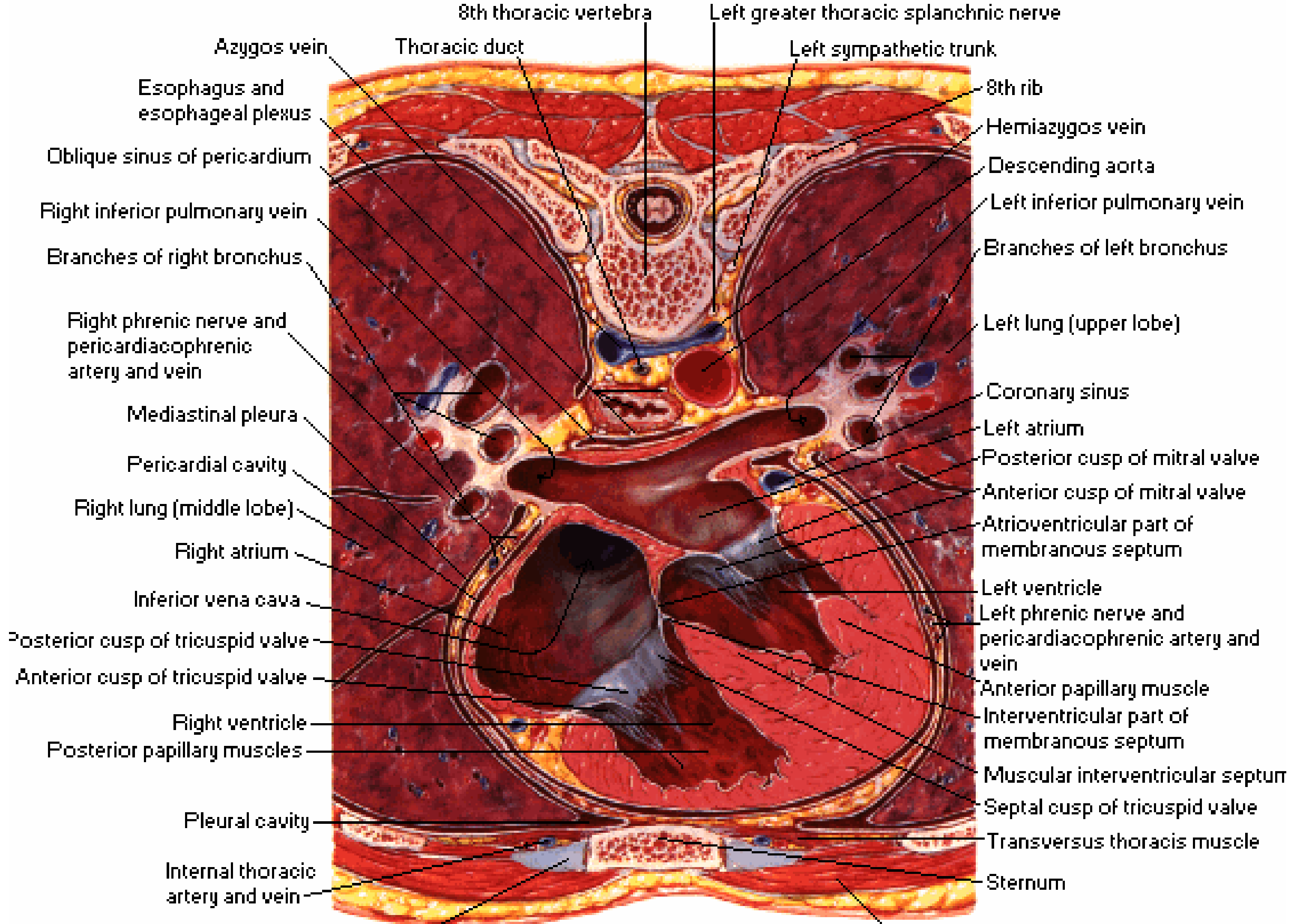


Multiple anterior vagal trunks
Single anterior vagal trunk divides just above diaphragm
Multiple posterior vagal trunks
High emergence of single trunk
Low emergence of single trunk

Schema

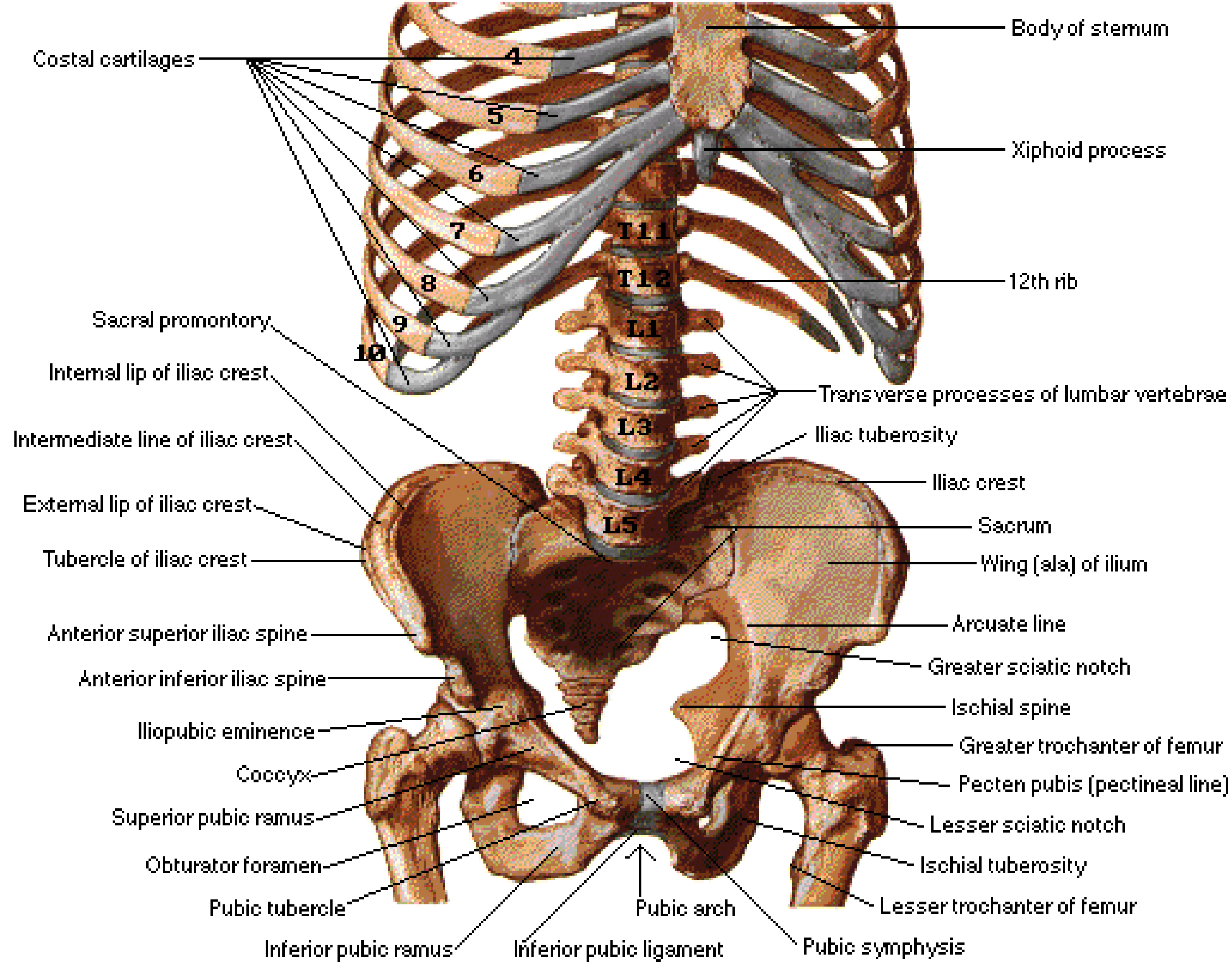

Longitudinal muscle
Intermuscular connective and elastic tissue
Myenteric (Auerbach's) plexus
Submucous (Meissner's) plexus
Submucosa
Circular muscle

Cross Section

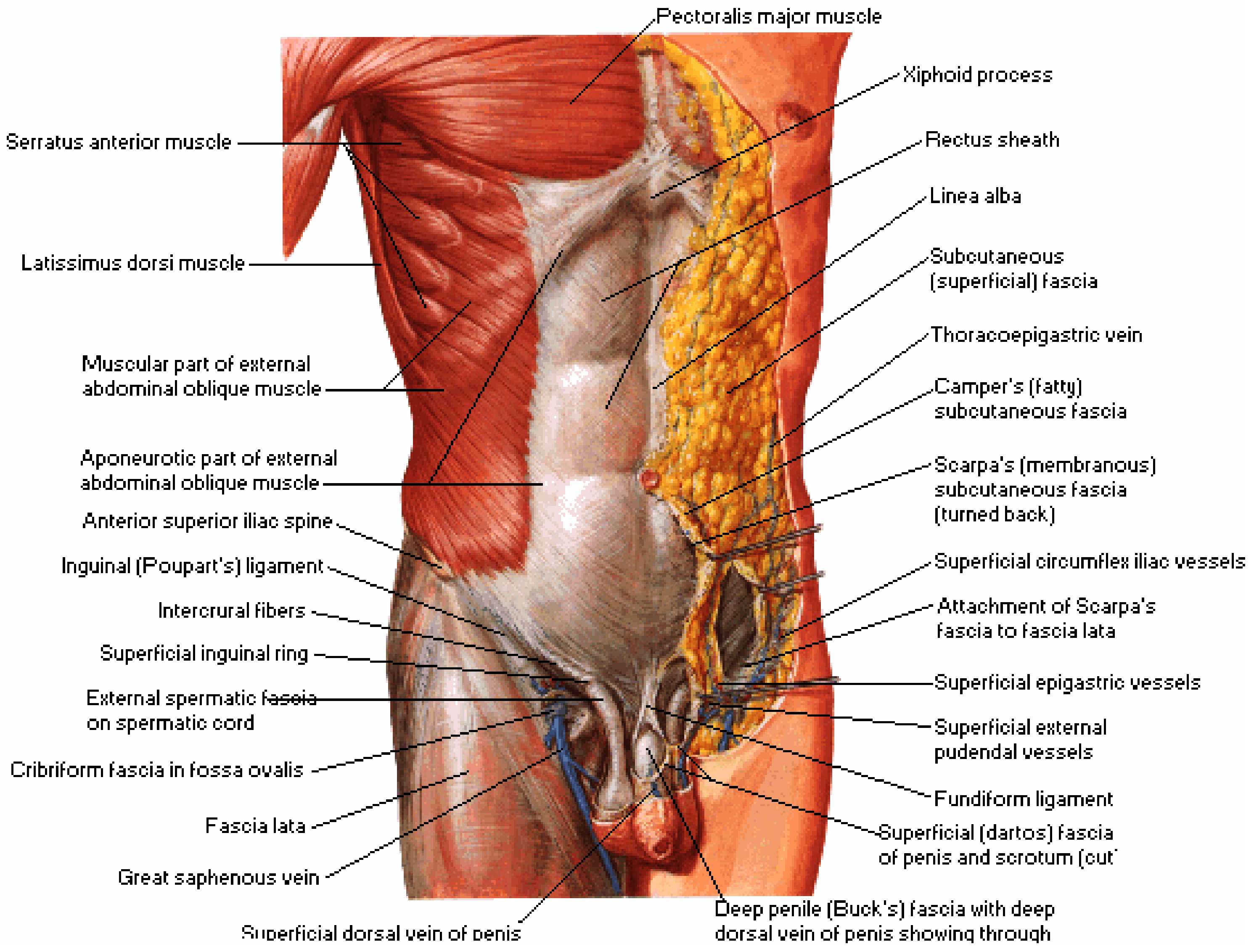


Superior view

Bony Framework of Abdomen

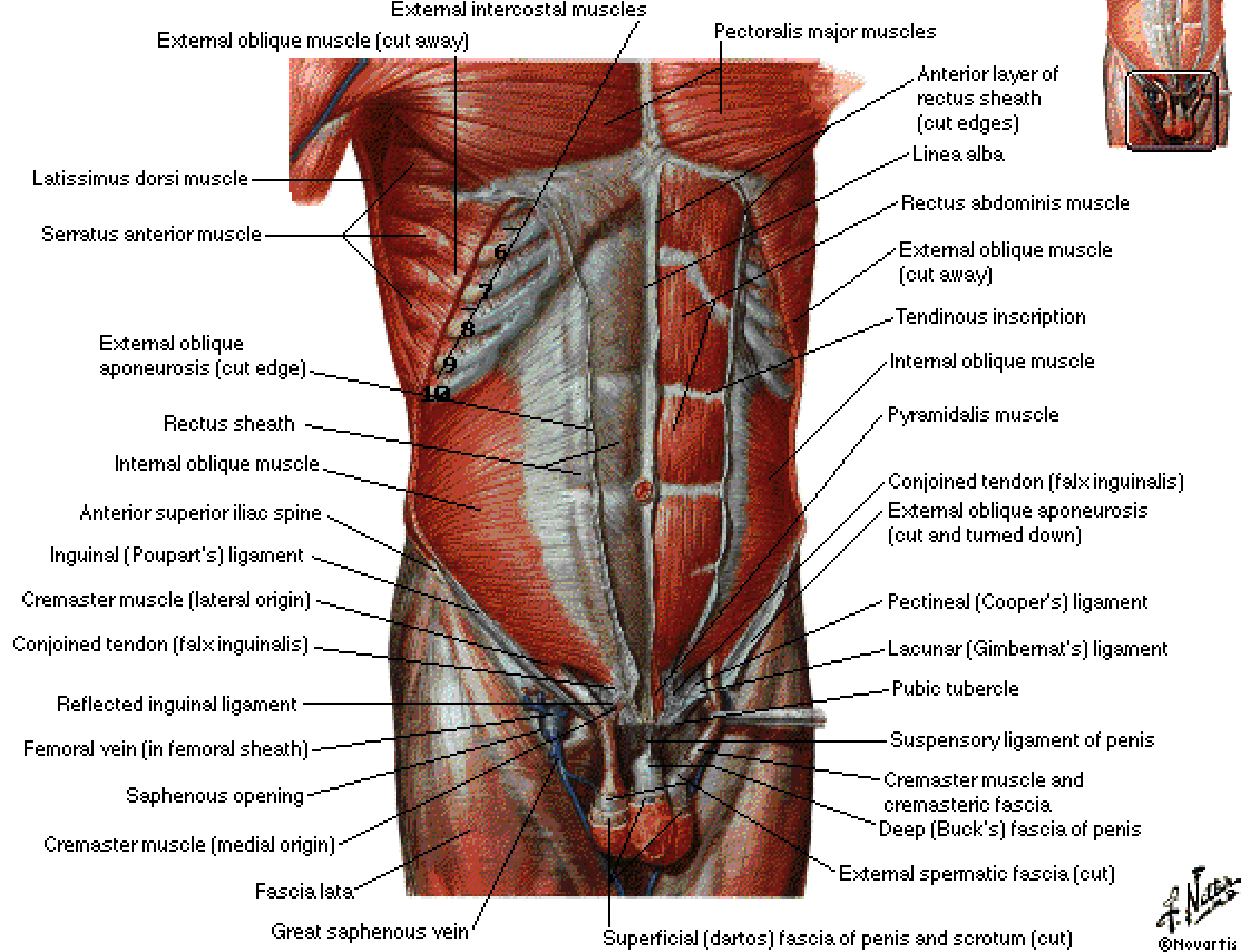


Superficial Dissection

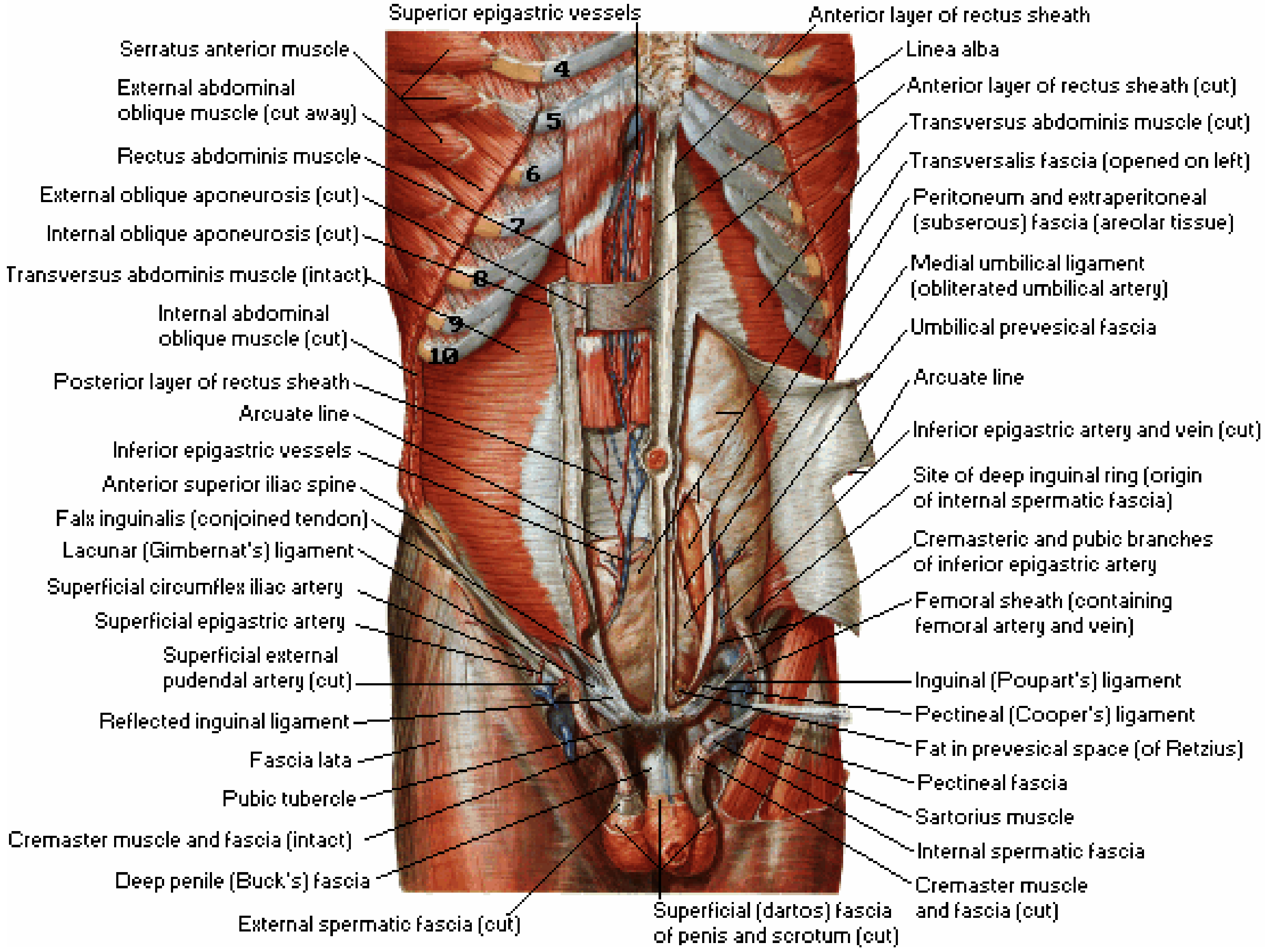


Anterior Abdominal Wall

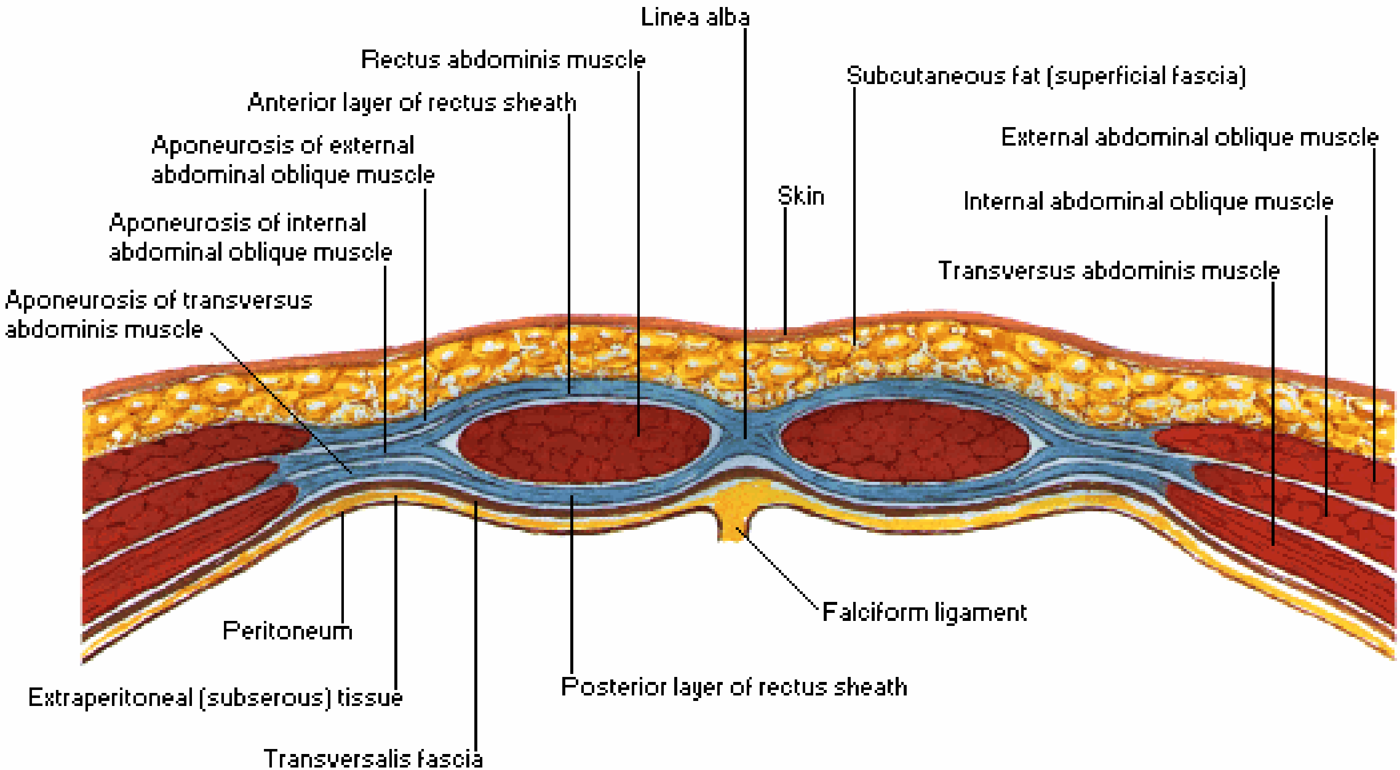
Intermediate Dissection



Deep Dissection

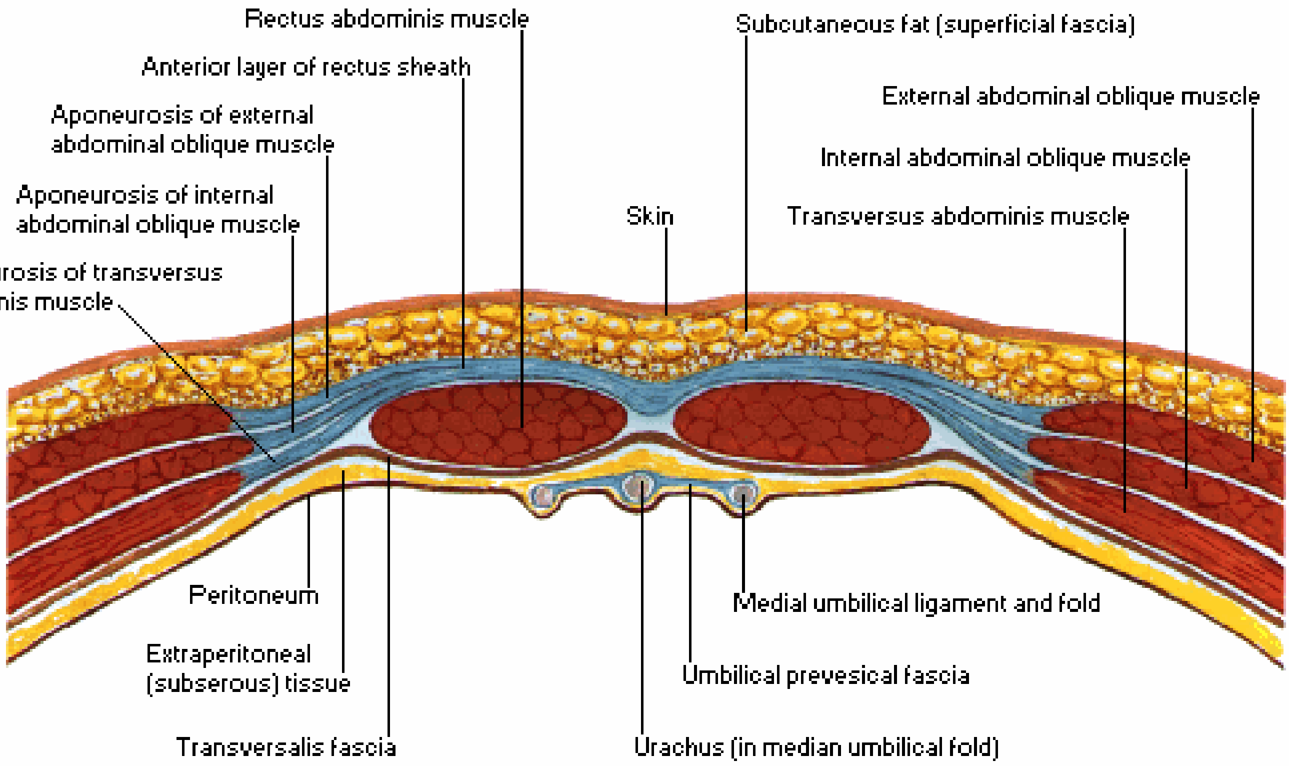


Cross Section Above Arcuate Line



Aponeurosis of internal abdominal oblique muscle splits to form anterior and posterior layers of rectus sheath. Aponeurosis of external abdominal oblique muscle joins anterior layer of sheath; aponeurosis of transversus abdominis muscle joins posterior layer. Anterior and posterior layers of rectus sheath unite medially to form linea alba

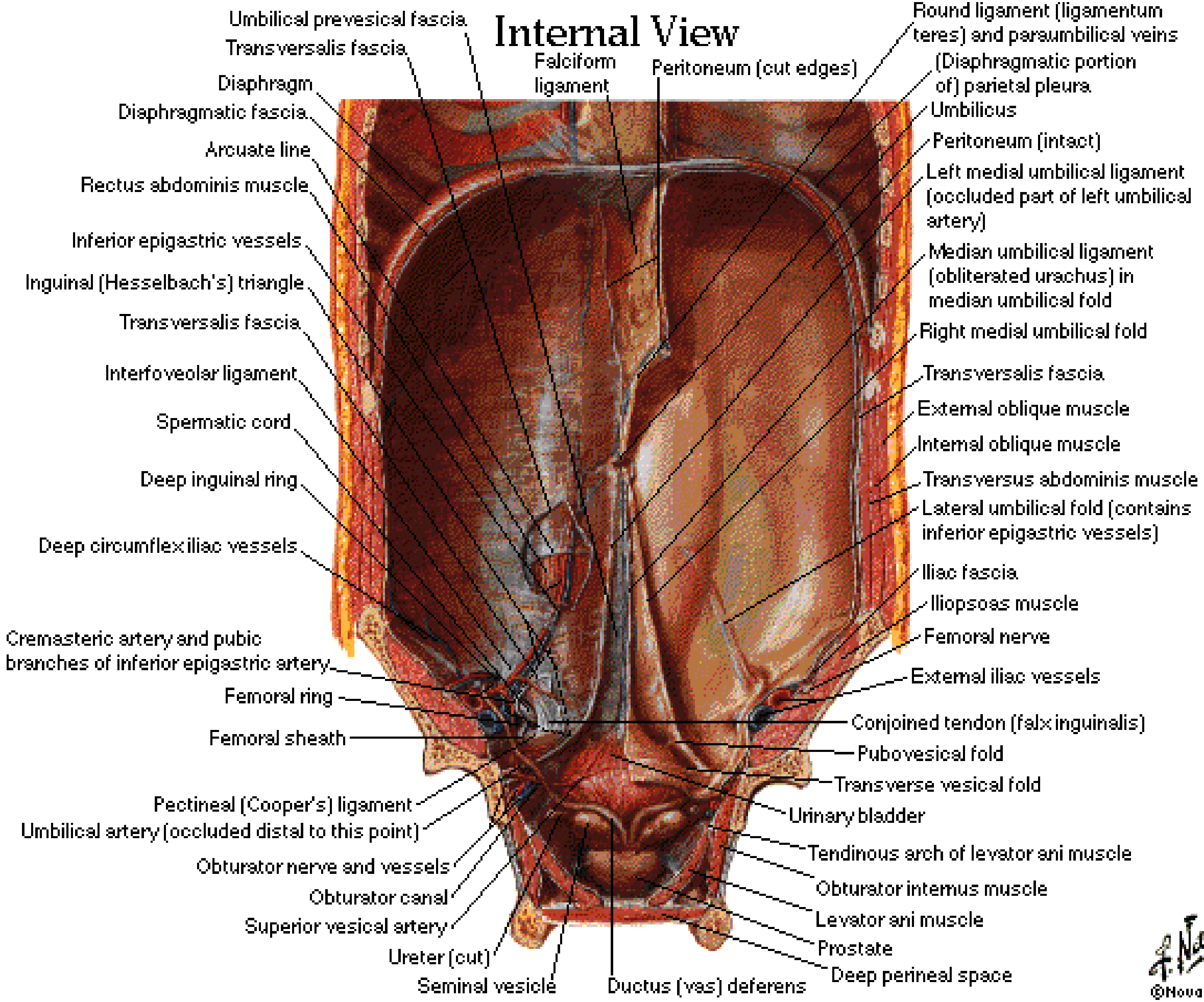
Cross Section Below Arcuate Line

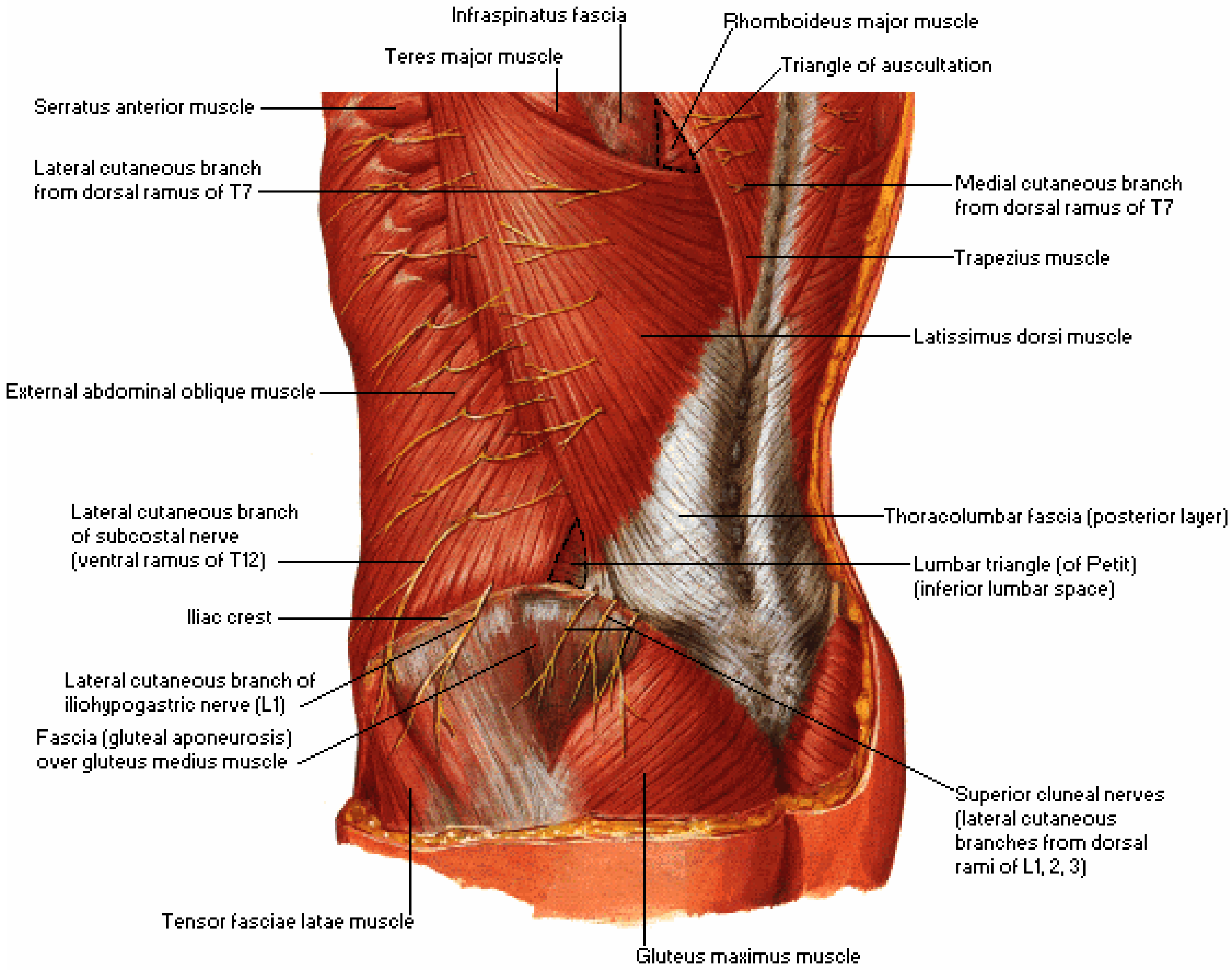


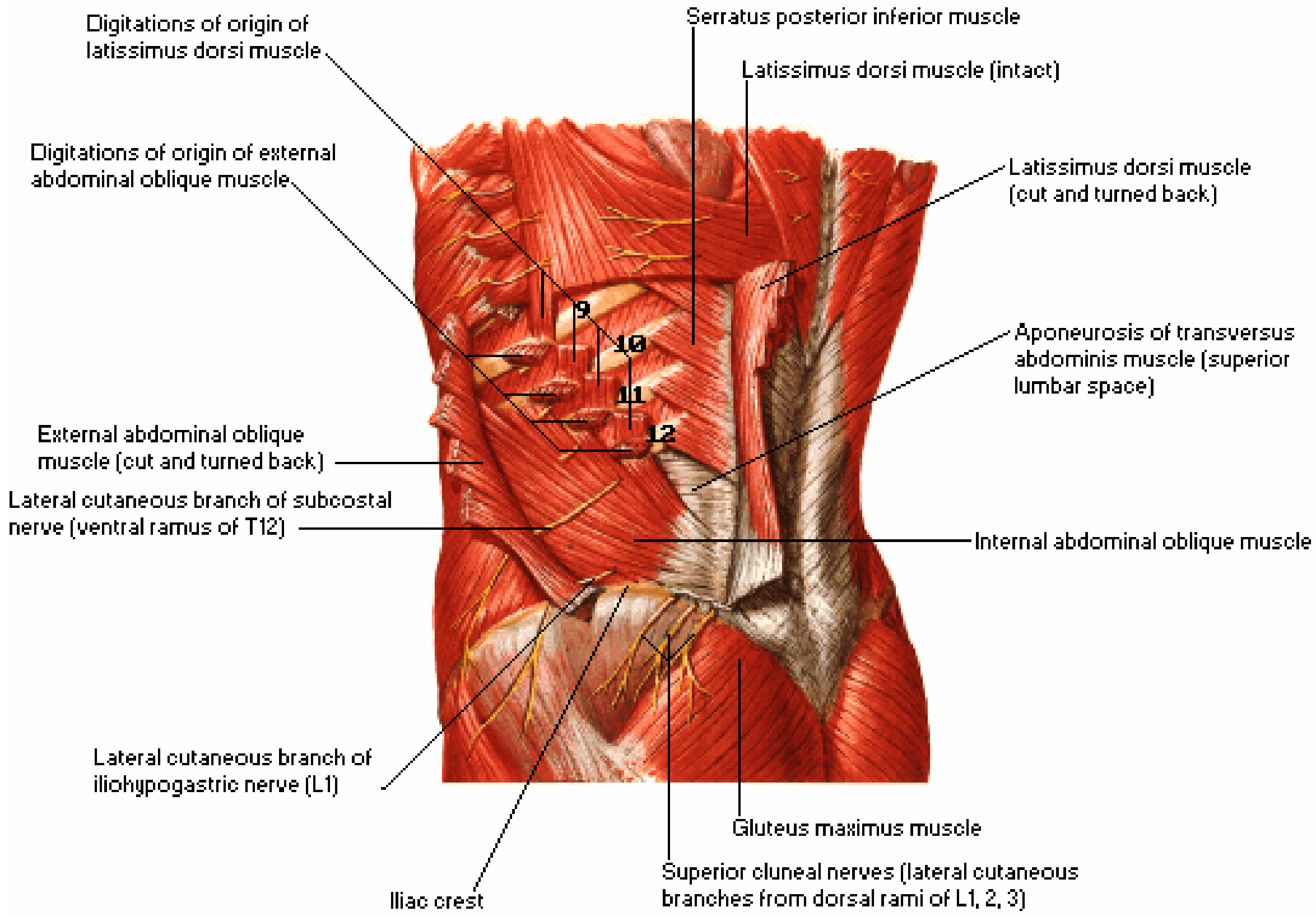
Aponeurosis of internal abdominal oblique muscle does not split at this level but passes completely anterior to rectus abdominis muscle and is fused there with both aponeurosis of external abdominal oblique muscle and that of transversus abdominis muscle. Thus posterior wall of rectus sheath is absent below arcuate line and rectus abdominis muscle lies on transversalis fascia

Anterior Abdominal Wall

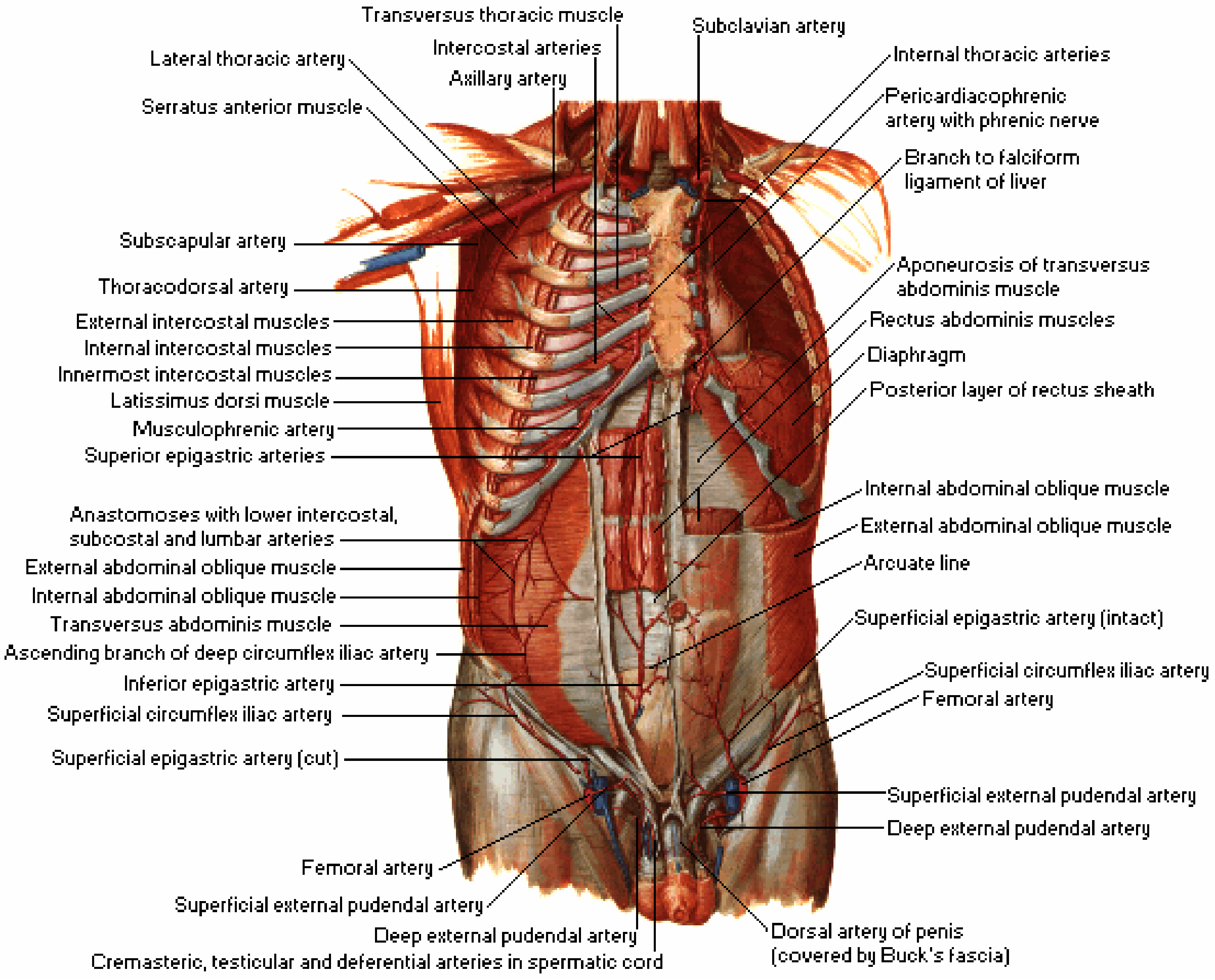
Internal View



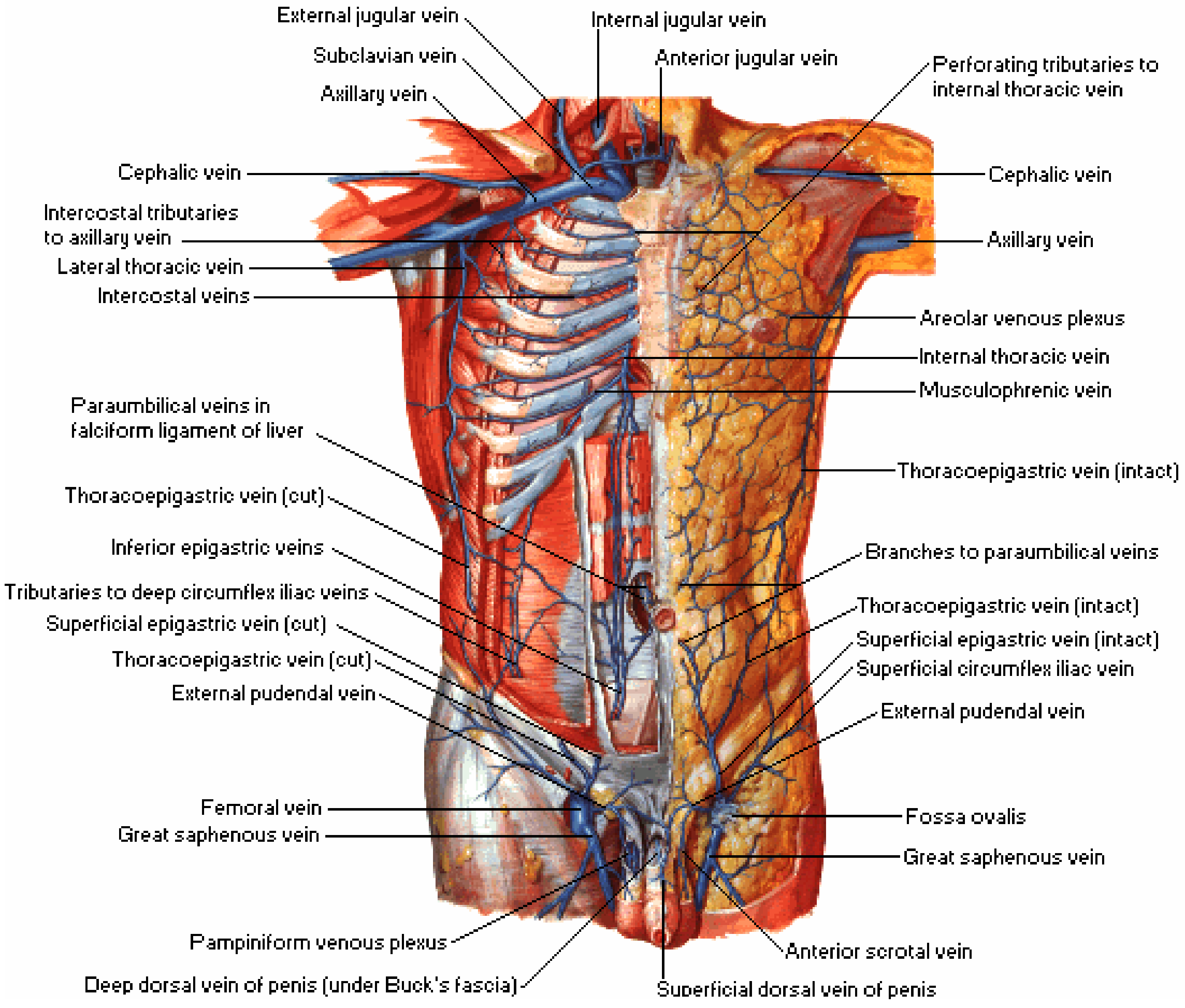

Infraspinatus fascia
Rhomboideus major muscle
Teres major muscle
Triangle of auscultation
Serratus anterior muscle
Lateral cutaneous branch from dorsal ramus of T7
Medial cutaneous branch from dorsal ramus of T7
Trapezius muscle
Latissimus dorsi muscle
External abdominal oblique muscle
Lateral cutaneous branch of subcostal nerve (ventral ramus of T12)
Thoracolumbar fascia (posterior layer)
Lumbar triangle (of Petit) (inferior lumbar space)
Iliac crest
Lateral cutaneous branch of iliohypogastric nerve (L1)
Fascia (gluteal aponeurosis) over gluteus medius muscle
Superior cluneal nerves (lateral cutaneous branches from dorsal rami of L1, 2, 3)
Tensor fasciae latae muscle
Gluteus maximus muscle

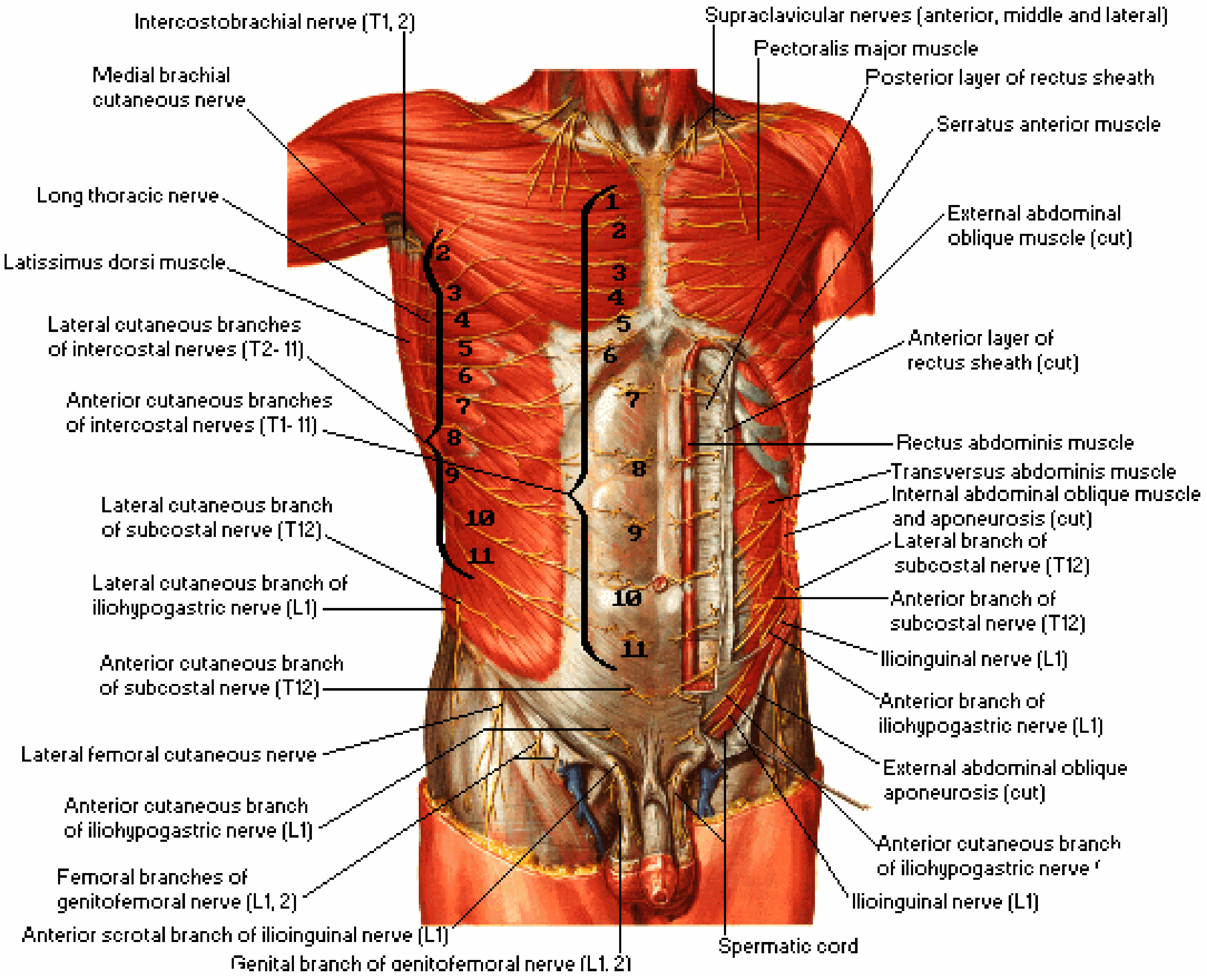


Digitations of origin of latissimus dorsi muscle
Serratus posterior inferior muscle
Latissimus dorsi muscle (intact)
Digitations of origin of external abdominal oblique muscle
Latissimus dorsi muscle (cut and turned back)
9
10
11
12
Aponeurosis of transversus abdominis muscle (superior lumbar space)
External abdominal oblique muscle (cut and turned back)
Lateral cutaneous branch of subcostal nerve (ventral ramus of T12)
Internal abdominal oblique muscle
Lateral cutaneous branch of iliohypogastric nerve (L1)
Gluteus maximus muscle
Superior cluneal nerves (lateral cutaneous branches from dorsal rami of L1, 2, 3)
Iliac crest

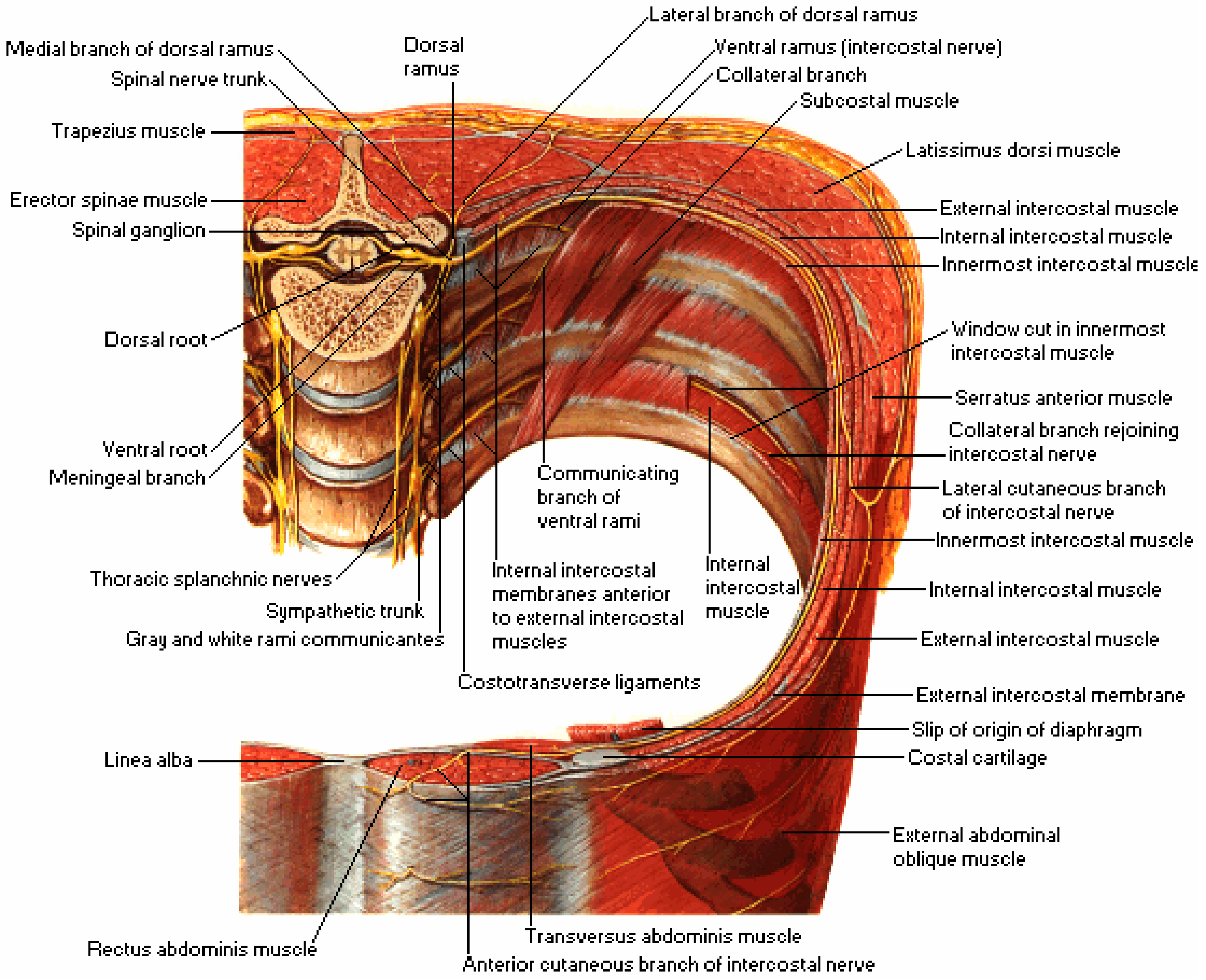


Transversus thoracic muscle
Subclavian artery
Intercostal arteries
Lateral thoracic artery
Axillary artery
Internal thoracic arteries
Serratus anterior muscle
Pericardiacophrenic
artery with phrenic nerve
Branch to falciform
ligament of liver
Subscapular artery
Aponeurosis of transversus
abdominis muscle
Thoracodorsal artery
External intercostal muscles
Rectus abdominis muscles
Internal intercostal muscles
Diaphragm
Innermost intercostal muscles
Posterior layer of rectus sheath
Latissimus dorsi muscle
Musculophrenic artery
Superior epigastric arteries
Internal abdominal oblique muscle
Anastomoses with lower intercostal,
subcostal and lumbar arteries
External abdominal oblique muscle
External abdominal oblique muscle
Arcuate line
Internal abdominal oblique muscle
Transversus abdominis muscle
Superficial epigastric artery (intact)
Ascending branch of deep circumflex iliac artery
Superficial circumflex iliac artery
Inferior epigastric artery
Femoral artery
Superficial circumflex iliac artery
Superficial epigastric artery (cut)
Superficial external pudendal artery
Deep external pudendal artery
Femoral artery
Superficial external pudendal artery
Dorsal artery of penis
(covered by Buck's fascia)
Deep external pudendal artery
Cremasteric, testicular and deferential arteries in spermatic cord


External jugular vein
Internal jugular vein
Subclavian vein
Anterior jugular vein
Perforating tributaries to internal thoracic vein
Axillary vein
Cephalic vein
Cephalic vein
Intercostal tributaries to axillary vein
Axillary vein
Lateral thoracic vein
Intercostal veins
Areolar venous plexus
Internal thoracic vein
Musculophrenic vein
Paraumbilical veins in falciform ligament of liver
Thoracoepigastric vein (intact)
Thoracoepigastric vein (cut)
Inferior epigastric veins
Branches to paraumbilical veins
Tributaries to deep circumflex iliac veins
Thoracoepigastric vein (intact)
Superficial epigastric vein (cut)
Superficial epigastric vein (intact)
Thoracoepigastric vein (cut)
Superficial circumflex iliac vein
External pudendal vein
External pudendal vein
Femoral vein
Fossa ovalis
Great saphenous vein
Great saphenous vein
Pampiniform venous plexus
Anterior scrotal vein
Deep dorsal vein of penis (under Buck's fascia)
Superficial dorsal vein of penis

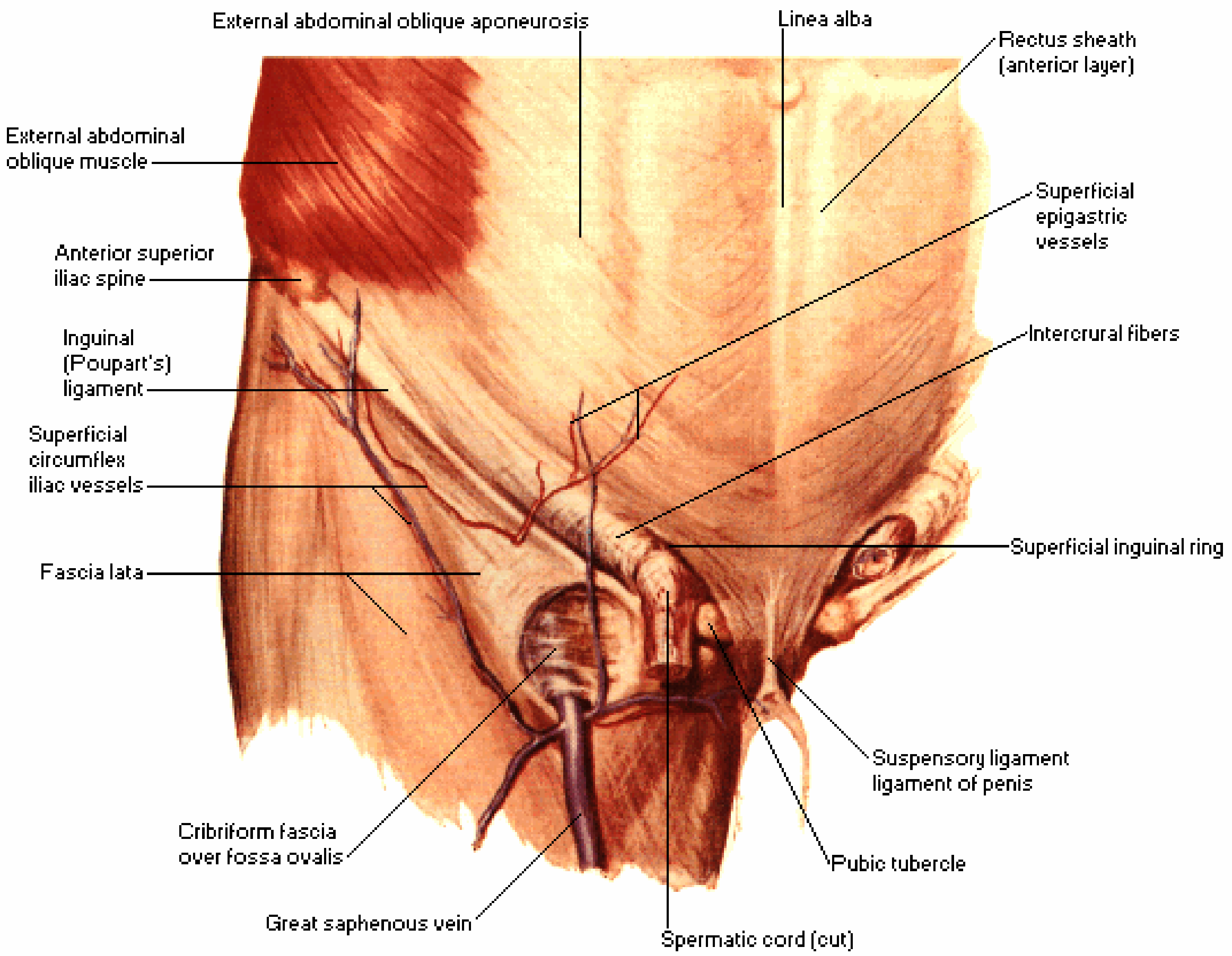


Intercostobrachial nerve (T1, 2)
Supraclavicular nerves (anterior, middle and lateral)
Pectoralis major muscle
Medial brachial cutaneous nerve
Posterior layer of rectus sheath
Serratus anterior muscle
Long thoracic nerve
External abdominal oblique muscle (cut)
Latissimus dorsi muscle
Lateral cutaneous branches of intercostal nerves (T2- 11)
Anterior layer of rectus sheath (cut)
Anterior cutaneous branches of intercostal nerves (T1- 11)
Rectus abdominis muscle
Transversus abdominis muscle
Internal abdominal oblique muscle and aponeurosis (cut)
Lateral cutaneous branch of subcostal nerve (T12)
Lateral branch of subcostal nerve (T12)
Lateral cutaneous branch of iliohypogastric nerve (L1)
Anterior branch of subcostal nerve (T12)
Iliohypogastric nerve (L1)
Ilioinguinal nerve (L1)
Anterior cutaneous branch of subcostal nerve (T12)
Anterior branch of iliohypogastric nerve (L1)
Lateral femoral cutaneous nerve
External abdominal oblique aponeurosis (cut)
Anterior cutaneous branch of iliohypogastric nerve (L1)
Anterior cutaneous branch of iliohypogastric nerve
Femoral branches of genitofemoral nerve (L1, 2)
Ilioinguinal nerve (L1)
Anterior scrotal branch of ilioinguinal nerve (L1)
Spermatic cord
Genital branch of genitofemoral nerve (L1, 2)
1
2
3
4
5
6
7
8
9
10
11

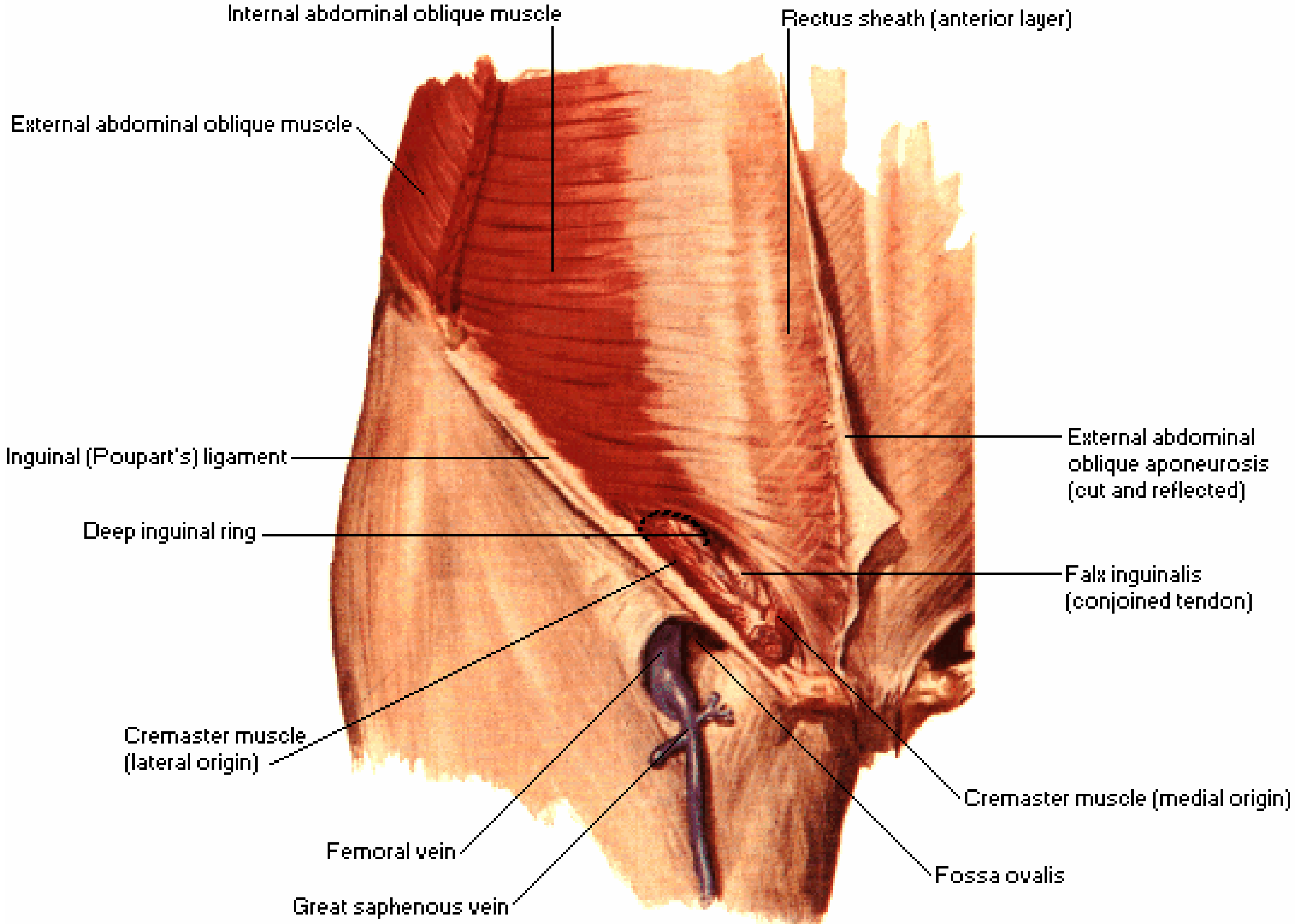


Lateral branch of dorsal ramus
Medial branch of dorsal ramus
Dorsal ramus
Ventral ramus (intercostal nerve)
Spinal nerve trunk
Collateral branch
Subcostal muscle
Trapezius muscle
Latissimus dorsi muscle
Erector spinae muscle
External intercostal muscle
Spinal ganglion
Internal intercostal muscle
Innermost intercostal muscle
Dorsal root
Window cut in innermost intercostal muscle
Serratus anterior muscle
Collateral branch rejoining intercostal nerve
Ventral root
Meningeal branch
Communicating branch of ventral rami
Lateral cutaneous branch of intercostal nerve
Innermost intercostal muscle
Thoracic splanchnic nerves
Internal intercostal membranes anterior to external intercostal muscles
Internal intercostal muscle
Internal intercostal muscle
Sympathetic trunk
Gray and white rami communicantes
External intercostal muscle
Costotransverse ligaments
External intercostal membrane
Slip of origin of diaphragm
Linea alba
Costal cartilage
External abdominal oblique muscle
Rectus abdominis muscle
Transversus abdominis muscle
Anterior cutaneous branch of intercostal nerve

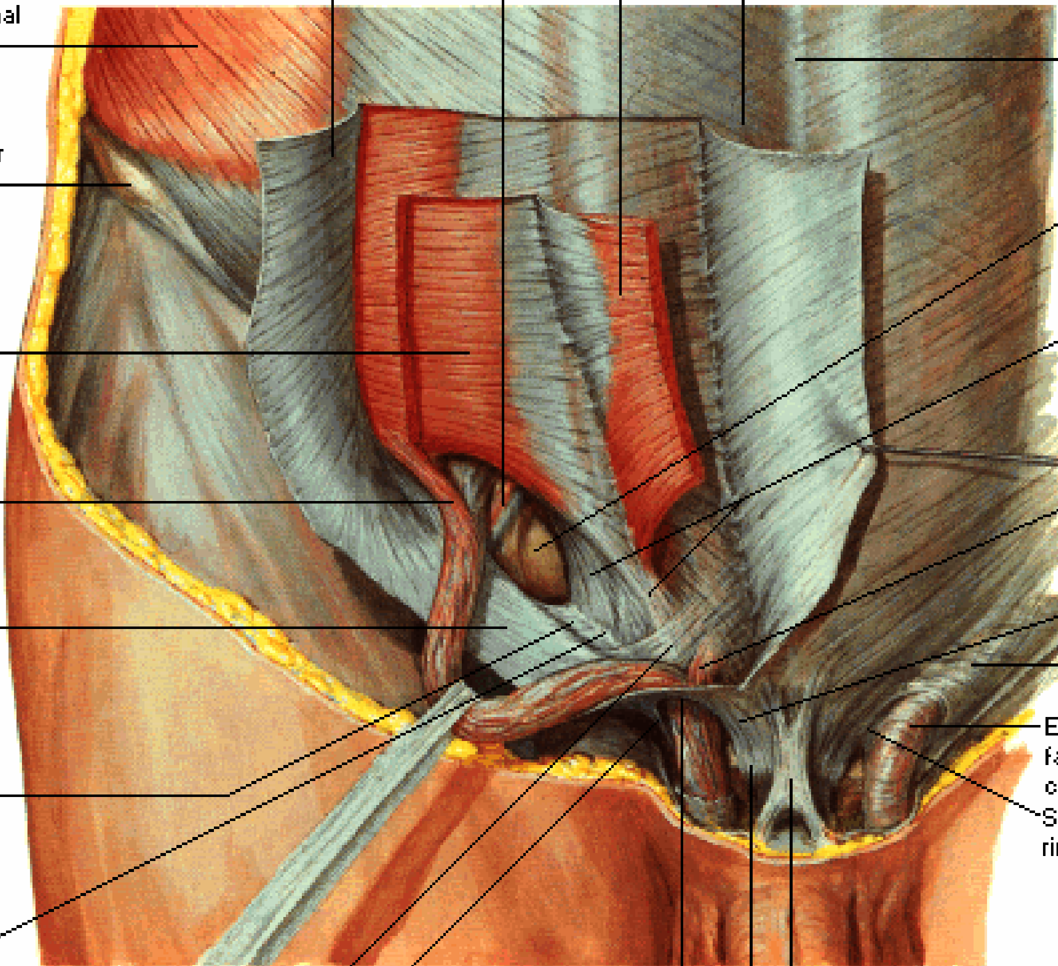
Subcutaneous Fascia Removed



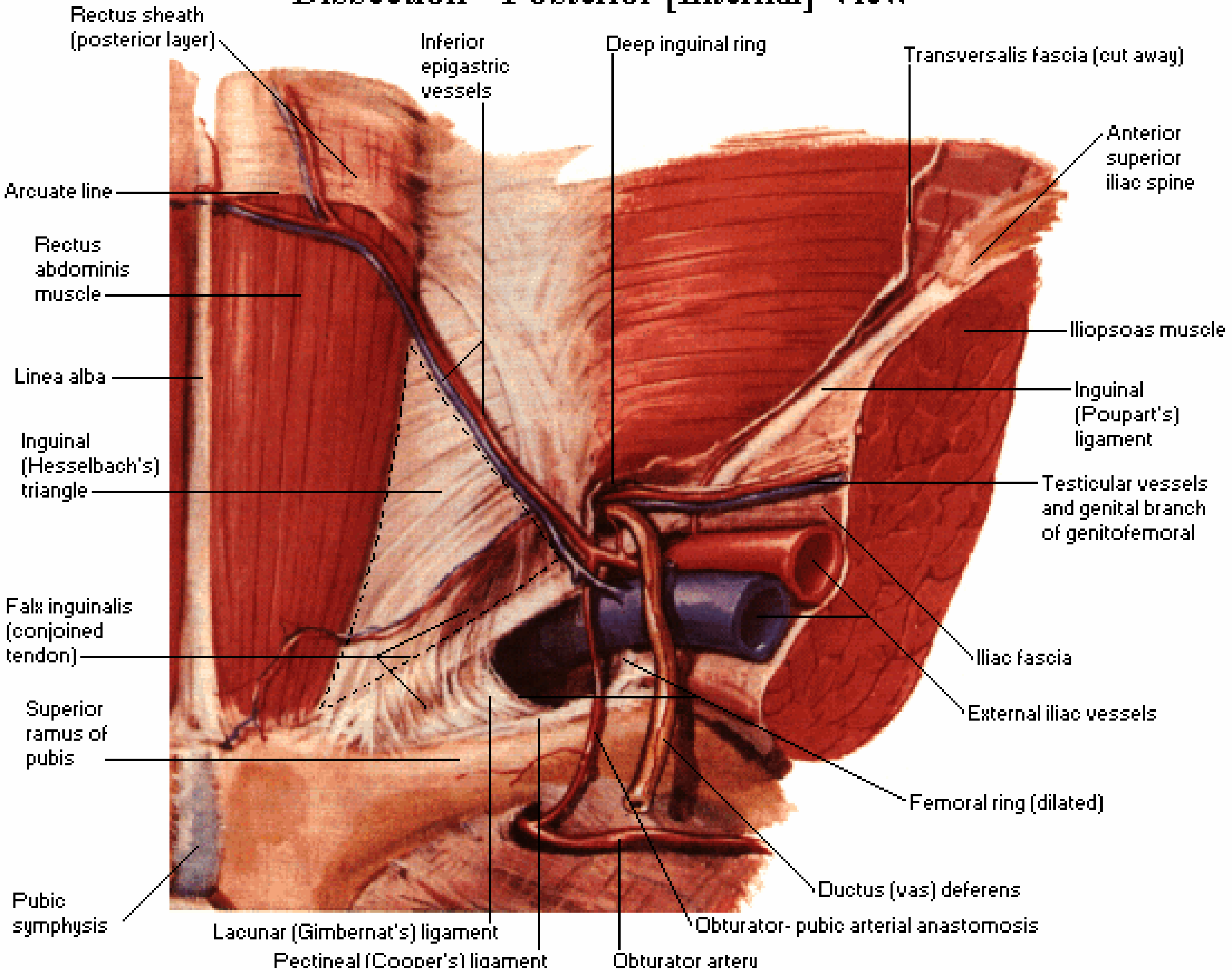
Cribriform Fascia Removed

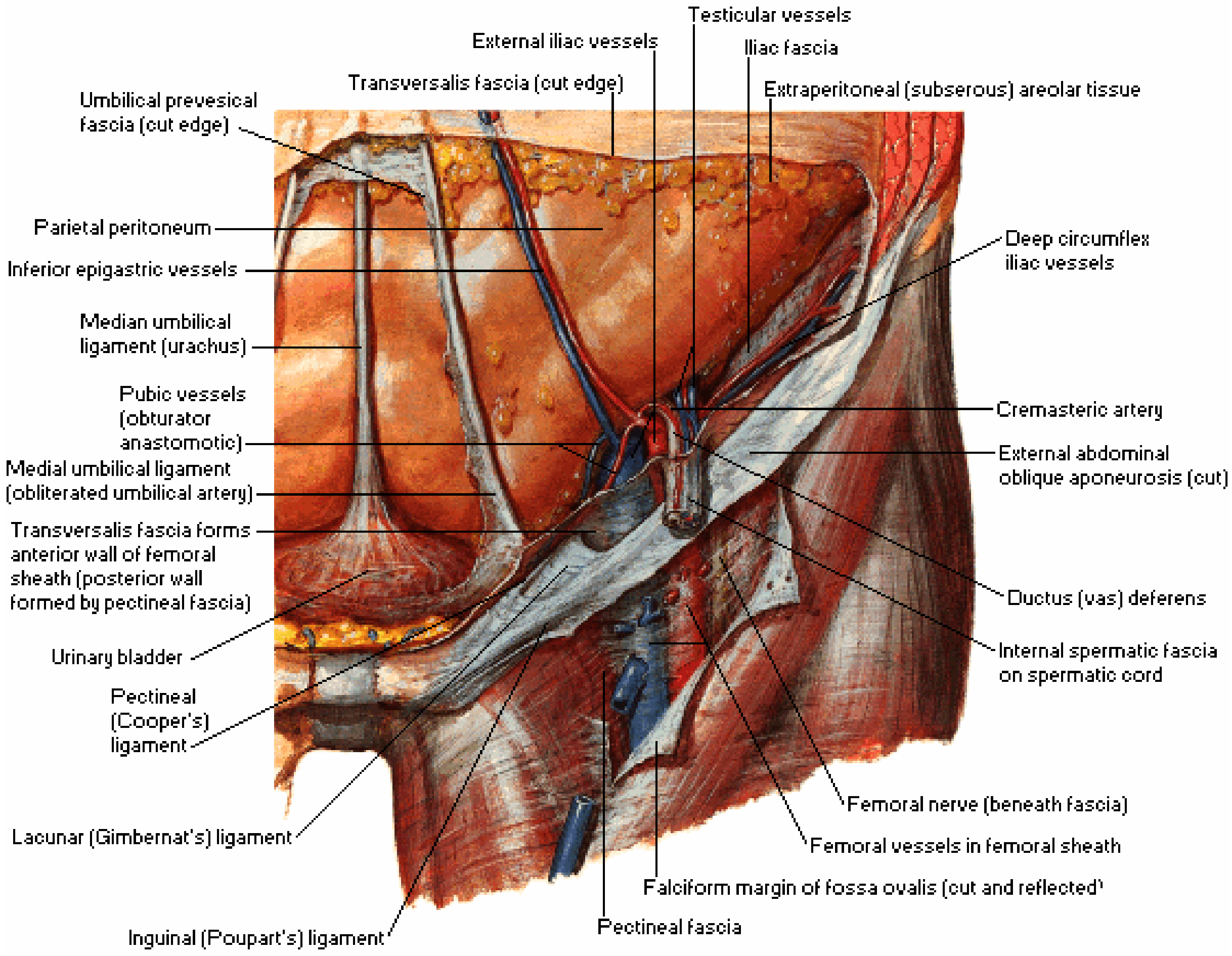


Dissection - Anterior View

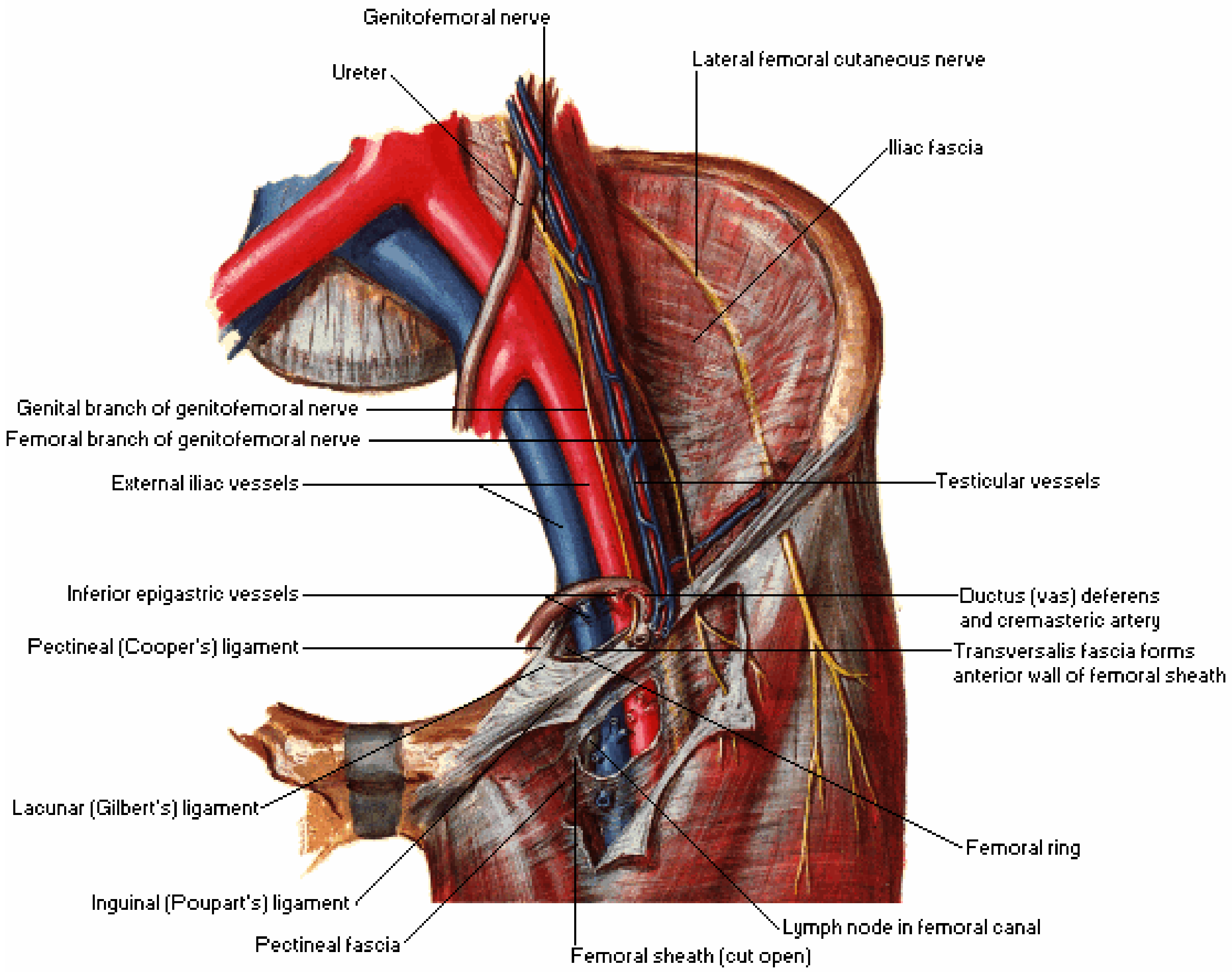


Dissection - Posterior [Internal] View

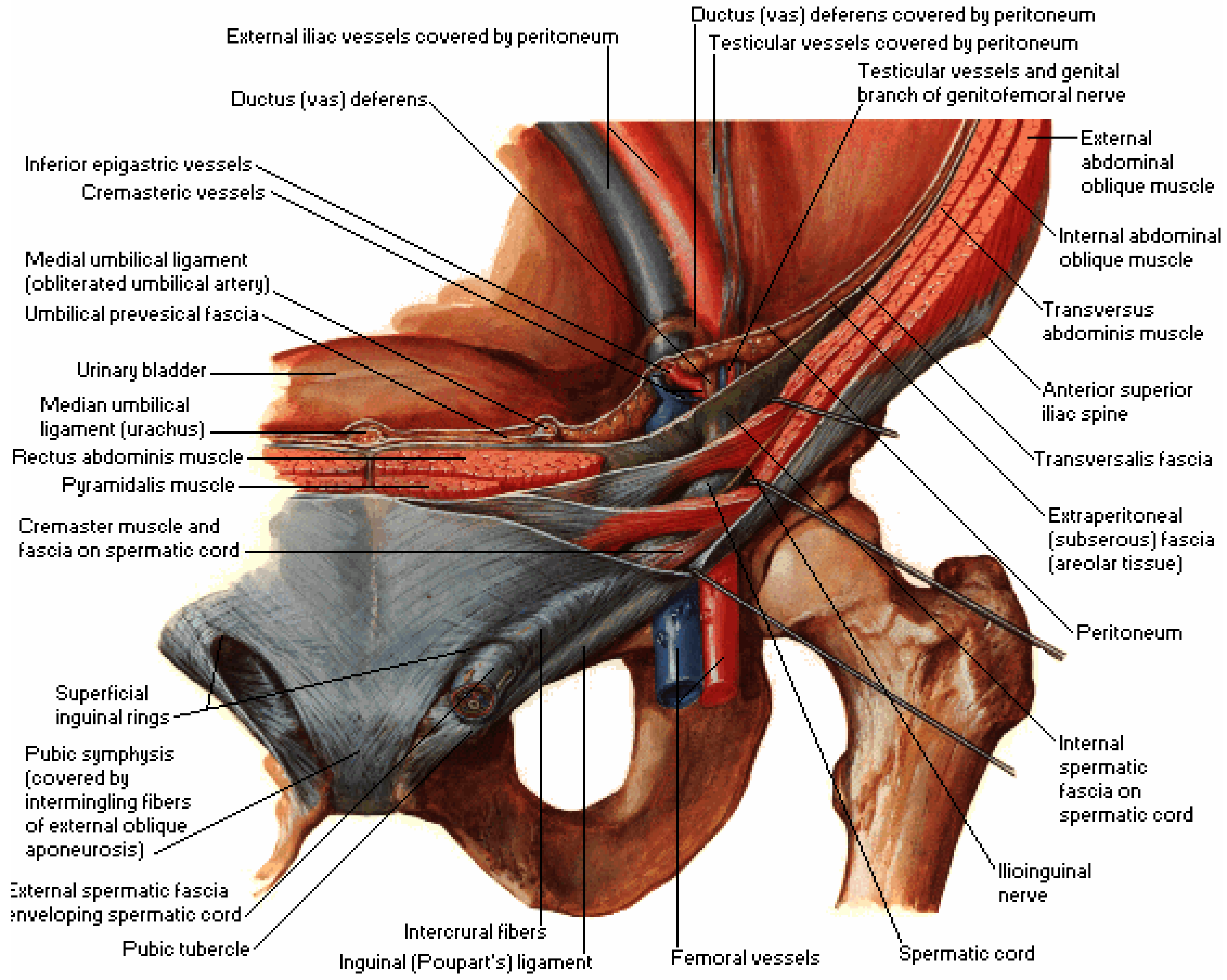




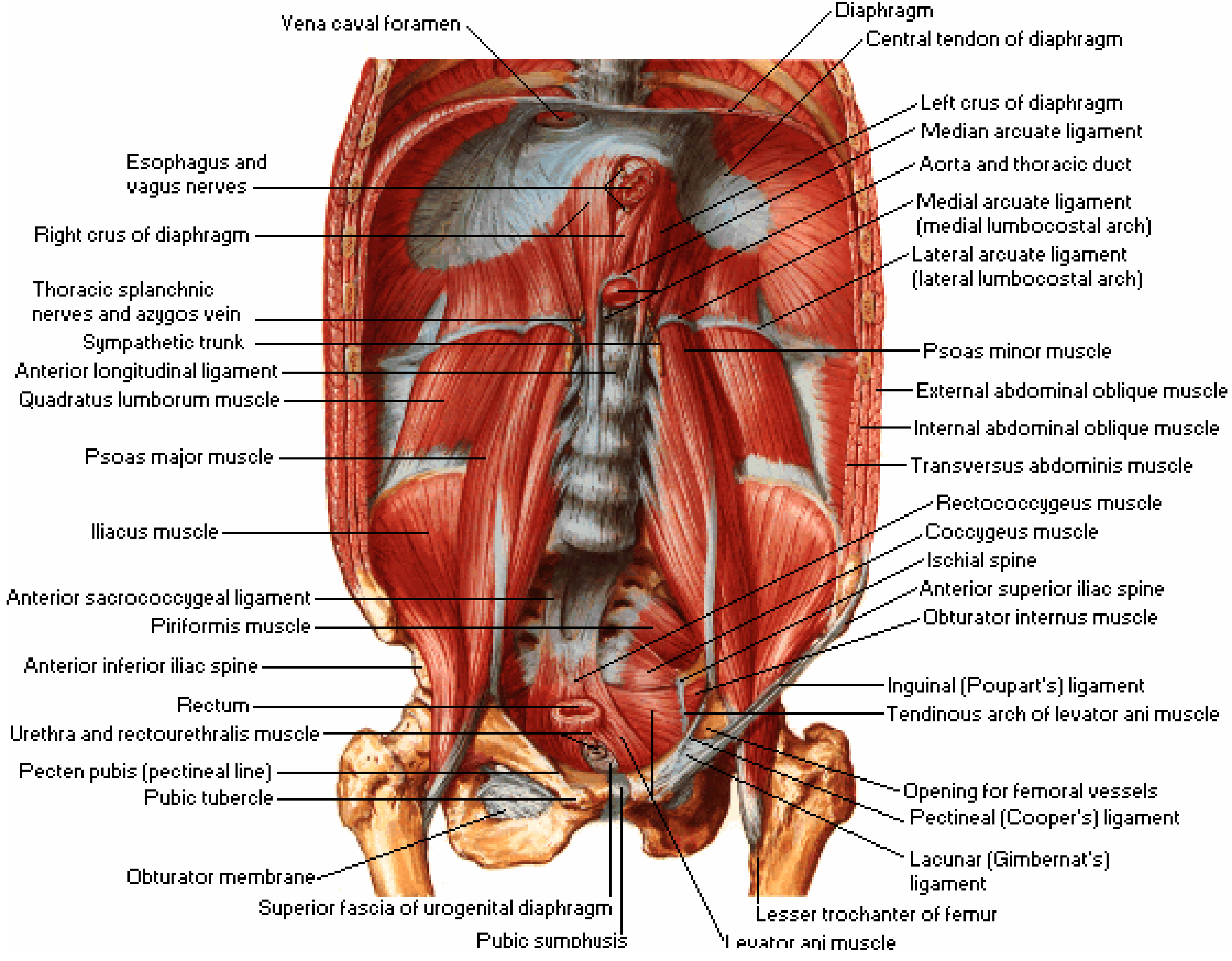
Testicular vessels
External iliac vessels
Iliac fascia
Transversalis fascia (cut edge)
Extraperitoneal (subserous) areolar tissue
Umbilical prevesical fascia (cut edge)
Parietal peritoneum
Inferior epigastric vessels
Deep circumflex iliac vessels
Median umbilical ligament (urachus)
Pubic vessels (obturator anastomotic)
Cremasteric artery
External abdominal oblique aponeurosis (cut)
Medial umbilical ligament (obliterated umbilical artery)
Transversalis fascia forms anterior wall of femoral sheath (posterior wall formed by pectineal fascia)
Ductus (vas) deferens
Internal spermatic fascia on spermatic cord
Urinary bladder
Pectineal (Cooper's) ligament
Femoral nerve (beneath fascia)
Lacunar (Gimbernat's) ligament
Femoral vessels in femoral sheath
Falciform margin of fossa ovalis (cut and reflected)
Inguinal (Poupart's) ligament
Pectineal fascia



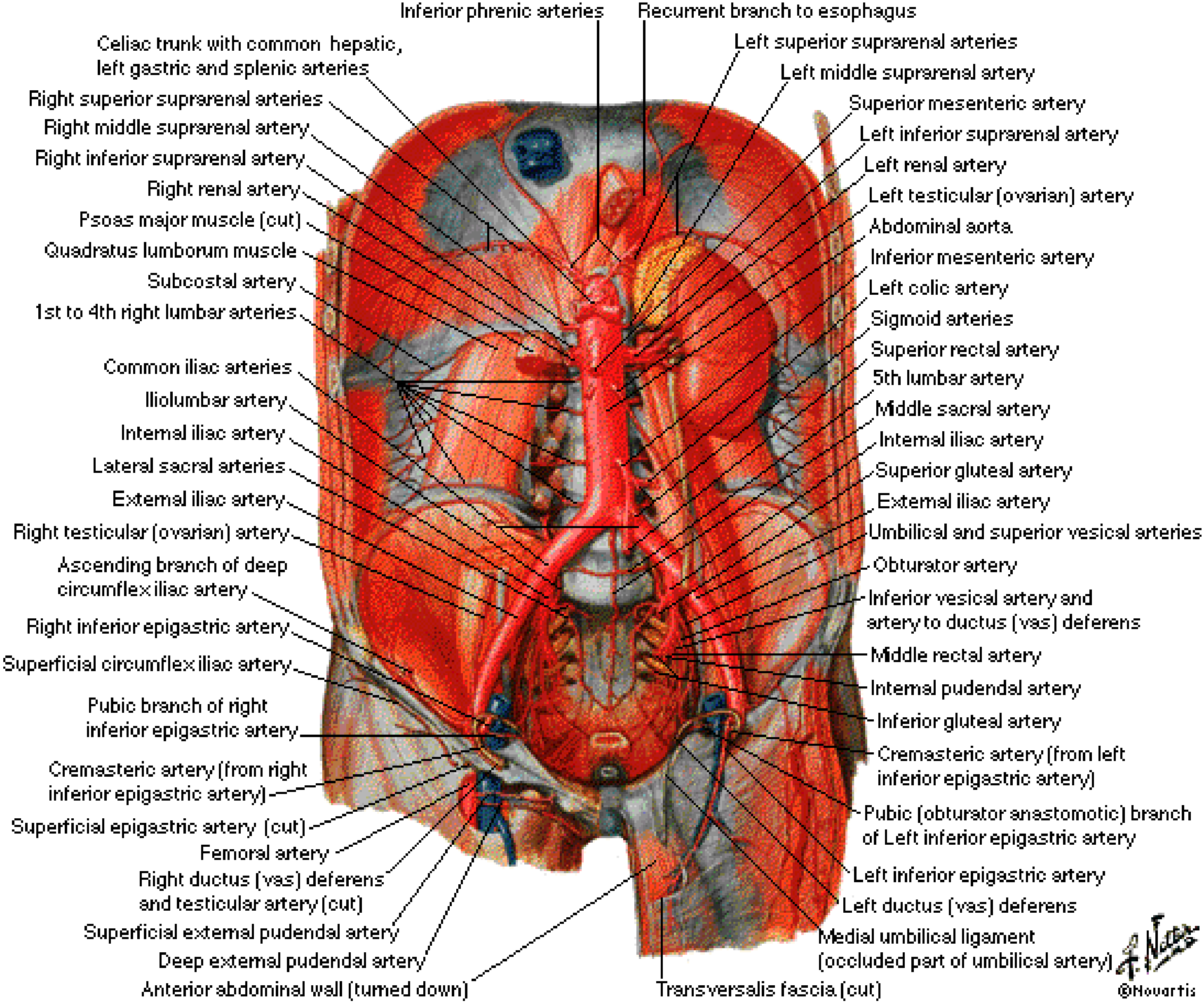
Genitofemoral nerve
Ureter
Lateral femoral cutaneous nerve
Iliac fascia
Genital branch of genitofemoral nerve
Femoral branch of genitofemoral nerve
External iliac vessels
Testicular vessels
Inferior epigastric vessels
Ductus (vas) deferens
and cremasteric artery
Pectineal (Cooper's) ligament
Transversalis fascia forms
anterior wall of femoral sheath
Lacunar (Gilbert's) ligament
Femoral ring
Inguinal (Poupart's) ligament
Lymph node in femoral canal
Pectineal fascia
Femoral sheath (cut open)

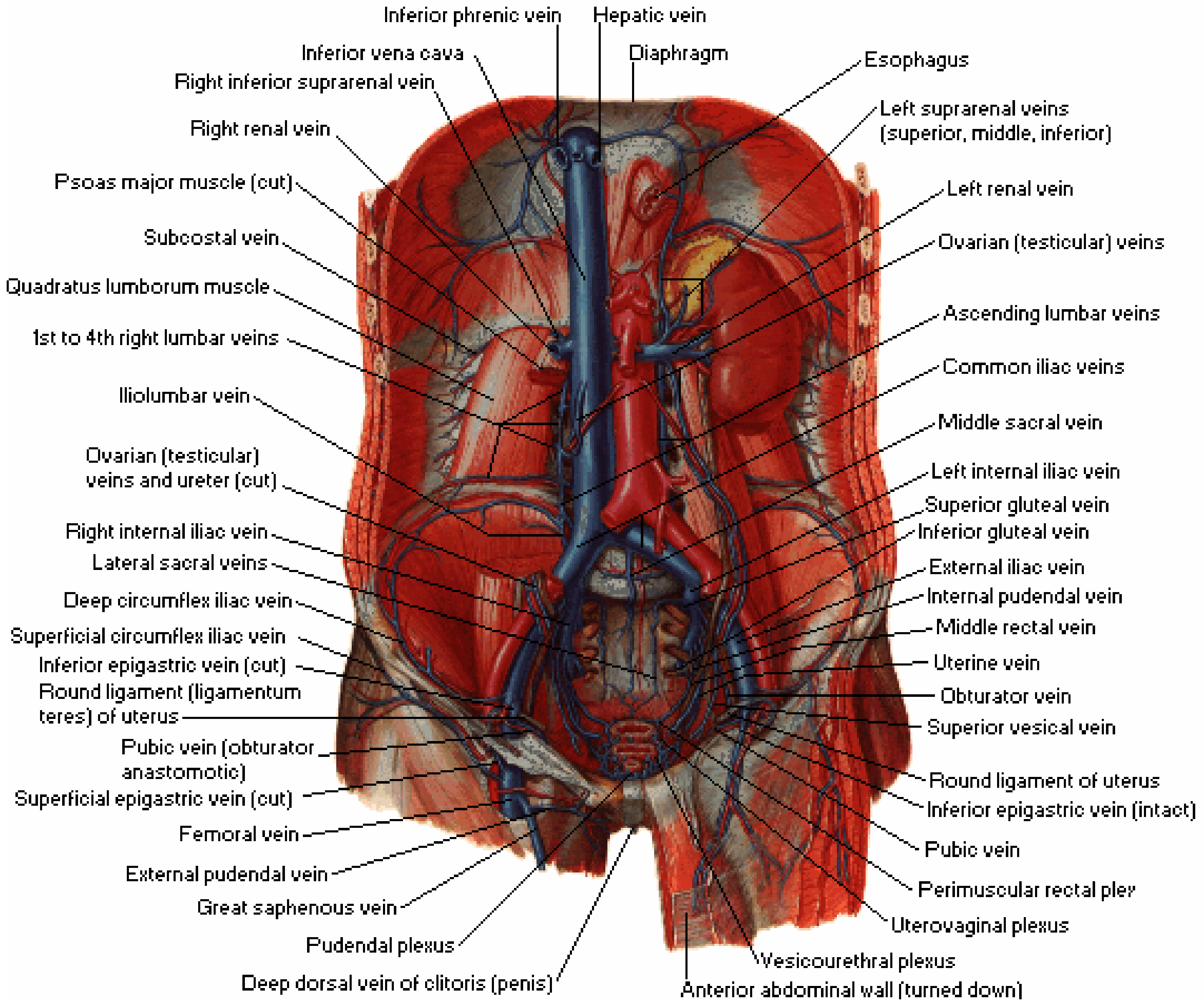

Ductus (vas) deferens covered by peritoneum
External iliac vessels covered by peritoneum
Testicular vessels covered by peritoneum
Testicular vessels and genital branch of genitofemoral nerve
Ductus (vas) deferens
External abdominal oblique muscle
Inferior epigastric vessels
Cremasteric vessels
Internal abdominal oblique muscle
Medial umbilical ligament (obliterated umbilical artery)
Umbilical prevesical fascia
Transversus abdominis muscle
Urinary bladder
Anterior superior iliac spine
Median umbilical ligament (urachus)
Rectus abdominis muscle
Transversalis fascia
Pyramidalis muscle
Extraperitoneal (subserous) fascia (areolar tissue)
Cremaster muscle and fascia on spermatic cord
Peritoneum
Superficial inguinal rings
Internal spermatic fascia on spermatic cord
Pubic symphysis (covered by intermingling fibers of external oblique aponeurosis)
Ilioinguinal nerve
External spermatic fascia enveloping spermatic cord
Intercrural fibers
Pubic tubercle
Inguinal (Poupart's) ligament
Femoral vessels
Spermatic cord

Internal View

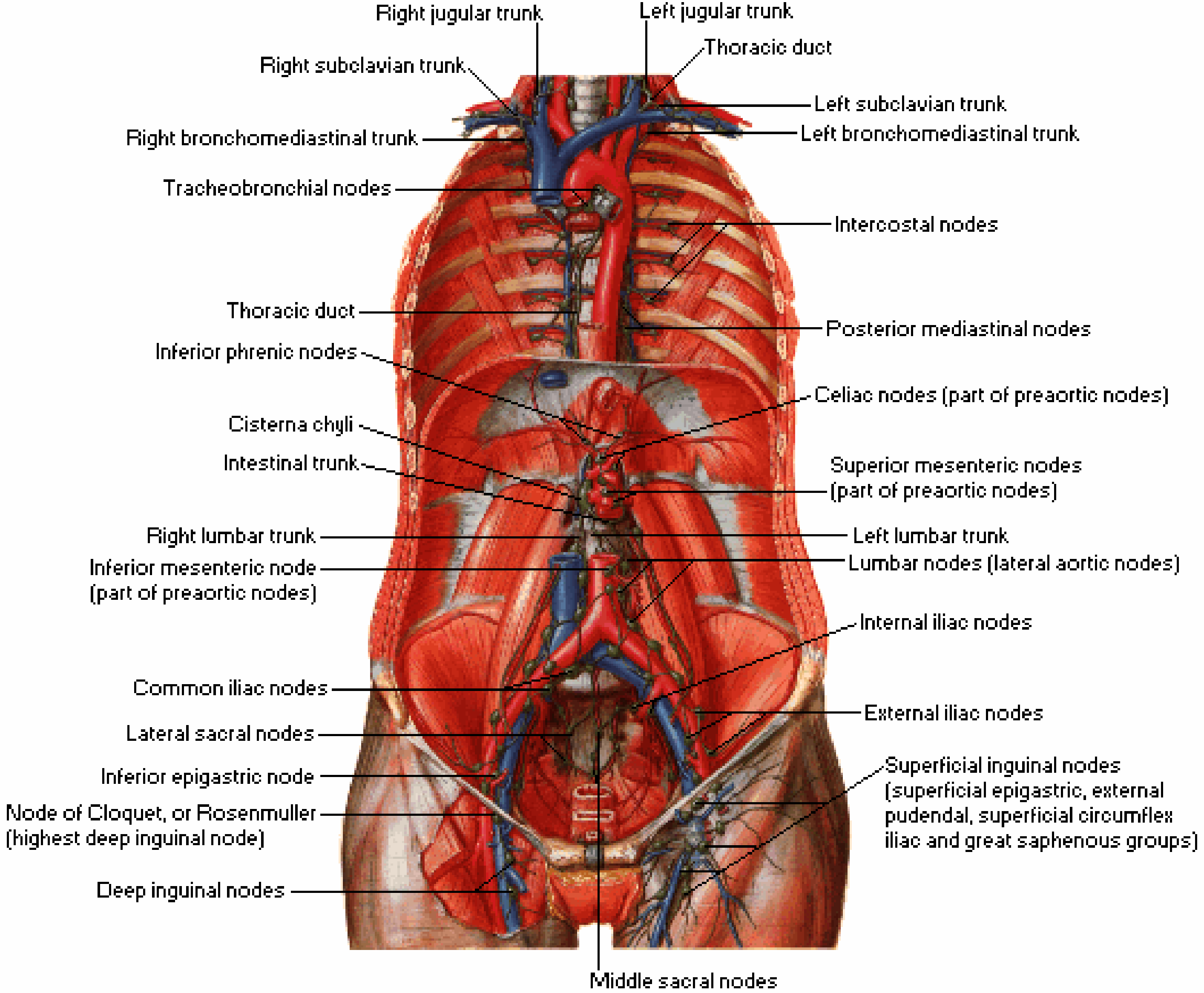


Arteries of Posterior Abdominal Wall

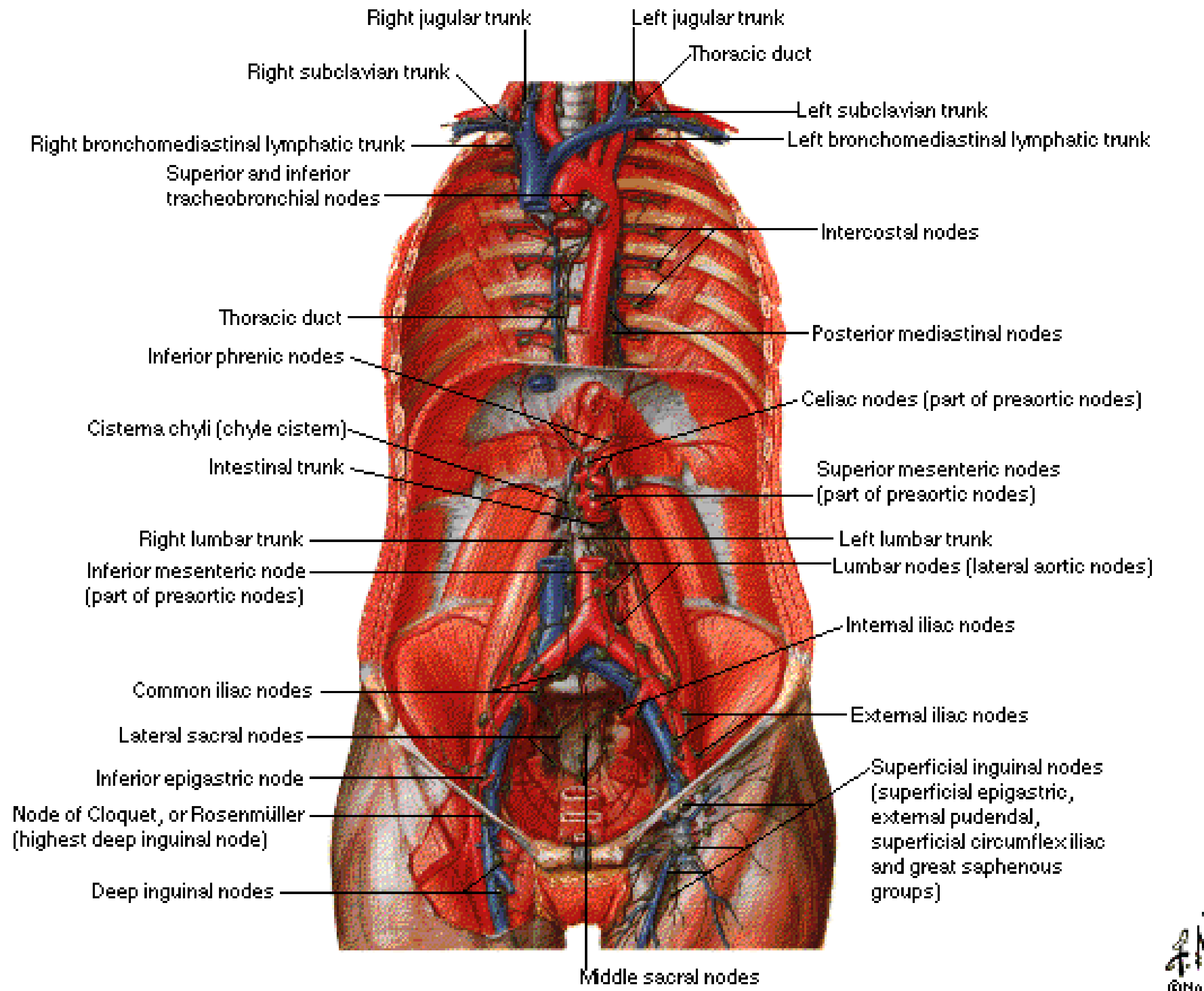


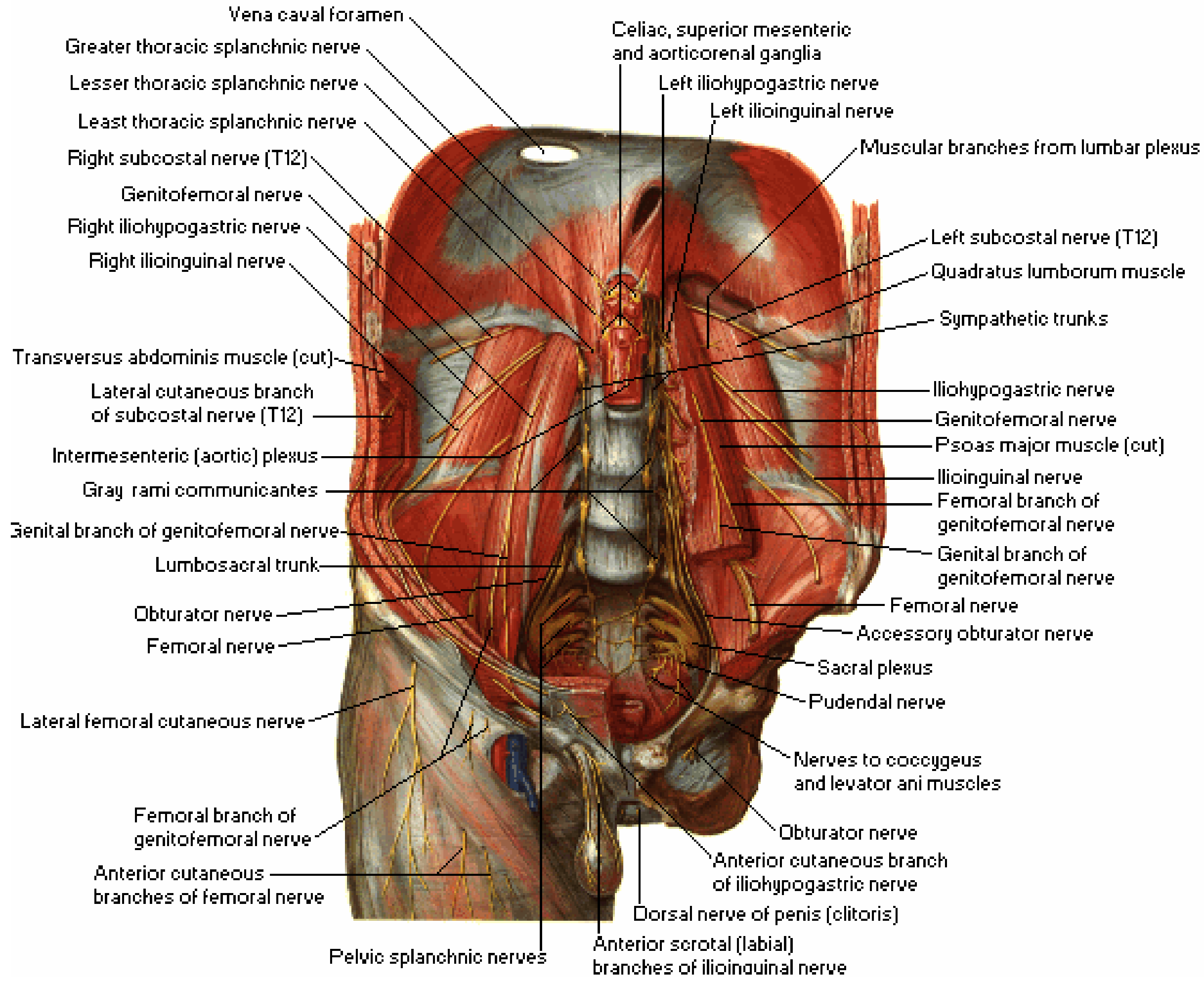


Inferior phrenic vein
Hepatic vein
Inferior vena cava
Diaphragm
Esophagus
Right inferior suprarenal vein
Left suprarenal veins (superior, middle, inferior)
Right renal vein
Psoas major muscle (cut)
Left renal vein
Subcostal vein
Ovarian (testicular) veins
Quadratus lumborum muscle
Ascending lumbar veins
1st to 4th right lumbar veins
Common iliac veins
Iliolumbar vein
Middle sacral vein
Ovarian (testicular) veins and ureter (cut)
Left internal iliac vein
Superior gluteal vein
Right internal iliac vein
Inferior gluteal vein
Lateral sacral veins
External iliac vein
Deep circumflex iliac vein
Internal pudendal vein
Superficial circumflex iliac vein
Middle rectal vein
Inferior epigastric vein (cut)
Uterine vein
Round ligament (ligamentum teres) of uterus
Obturator vein
Superior vesical vein
Pubic vein (obturator anastomotic)
Round ligament of uterus
Superficial epigastric vein (cut)
Inferior epigastric vein (intact)
Femoral vein
Pubic vein
External pudendal vein
Perimuscular rectal plex
Great saphenous vein
Uterovaginal plexus
Pudendal plexus
Vesicourethral plexus
Deep dorsal vein of clitoris (penis)
Anterior abdominal wall (turned down)

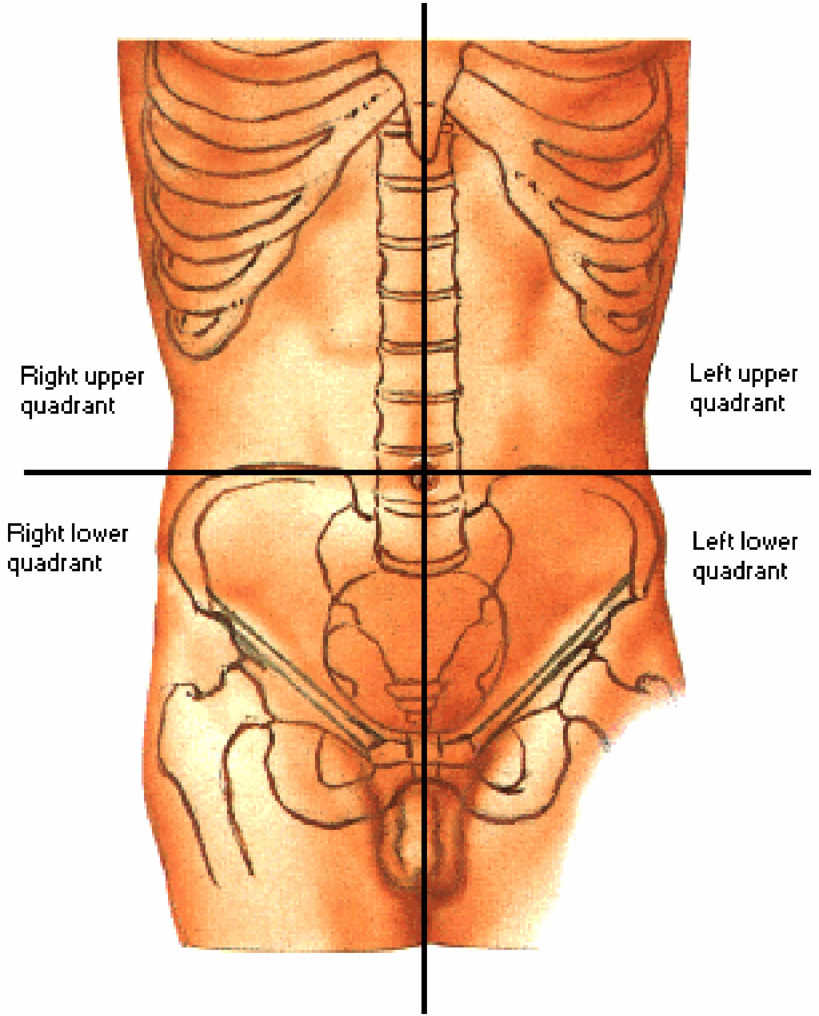

Right jugular trunk
Left jugular trunk
Thoracic duct
Right subclavian trunk
Left subclavian trunk
Right bronchomediastinal trunk
Left bronchomediastinal trunk
Tracheobronchial nodes
Intercostal nodes
Thoracic duct
Posterior mediastinal nodes
Inferior phrenic nodes
Celiac nodes (part of preaortic nodes)
Cisterna chyli
Intestinal trunk
Superior mesenteric nodes
(part of preaortic nodes)
Right lumbar trunk
Left lumbar trunk
Inferior mesenteric node
(part of preaortic nodes)
Lumbar nodes (lateral aortic nodes)
Internal iliac nodes
Common iliac nodes
External iliac nodes
Lateral sacral nodes
Inferior epigastric node
Superficial inguinal nodes
(superficial epigastric, external
pudendal, superficial circumflex
iliac and great saphenous groups)
Node of Cloquet, or Rosenmuller
(highest deep inguinal node)
Deep inguinal nodes
Middle sacral nodes

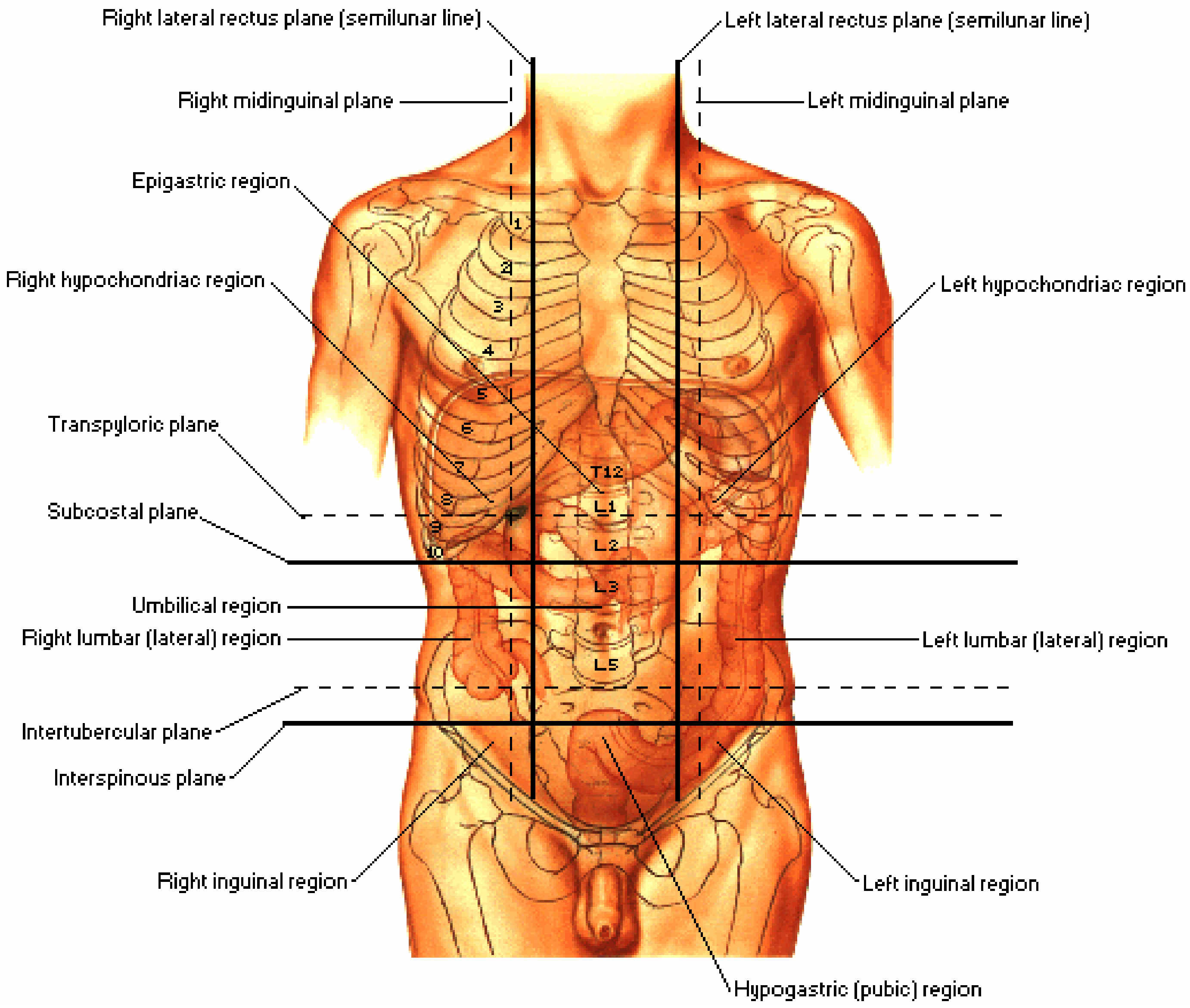
Lymph Vessels and Nodes of Posterior Abdominal Wall



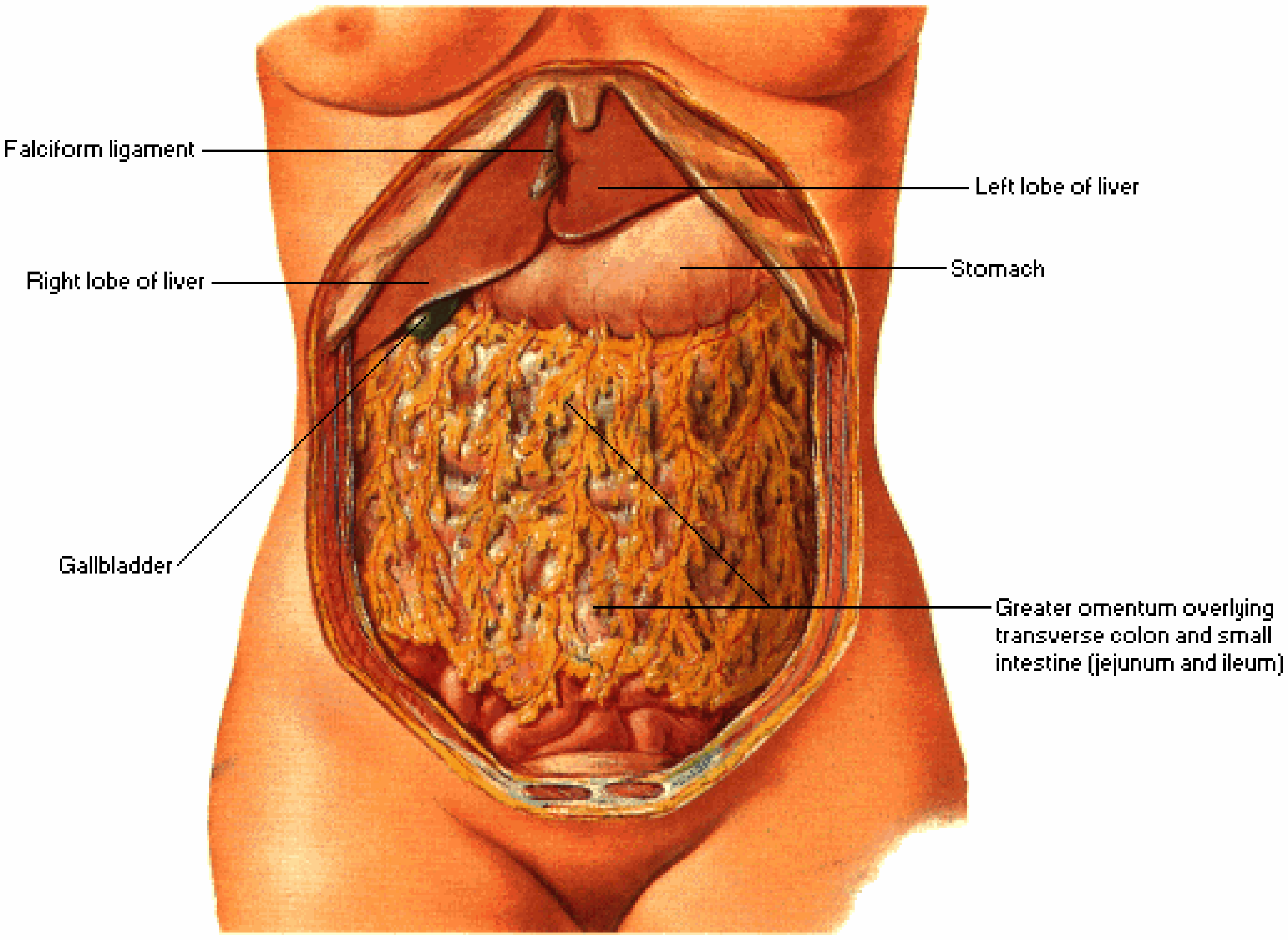


Vena caval foramen
Greater thoracic splanchnic nerve
Lesser thoracic splanchnic nerve
Least thoracic splanchnic nerve
Right subcostal nerve (T12)
Genitofemoral nerve
Right iliohypogastric nerve
Right ilioinguinal nerve
Transversus abdominis muscle (cut)
Lateral cutaneous branch of subcostal nerve (T12)
Intermesenteric (aortic) plexus
Gray rami communicantes
Genital branch of genitofemoral nerve
Lumbosacral trunk
Obturator nerve
Femoral nerve
Lateral femoral cutaneous nerve
Femoral branch of genitofemoral nerve
Anterior cutaneous branches of femoral nerve
Pelvic splanchnic nerves
Celiac, superior mesenteric and aorticorenal ganglia
Left iliohypogastric nerve
Left ilioinguinal nerve
Muscular branches from lumbar plexus
Left subcostal nerve (T12)
Quadratus lumborum muscle
Sympathetic trunks
Iliohypogastric nerve
Genitofemoral nerve
Psoas major muscle (cut)
Ilioinguinal nerve
Femoral branch of genitofemoral nerve
Genital branch of genitofemoral nerve
Femoral nerve
Accessory obturator nerve
Sacral plexus
Pudendal nerve
Nerves to coccygeus and levator ani muscles
Obturator nerve
Anterior cutaneous branch of iliohypogastric nerve
Dorsal nerve of penis (clitoris)
Anterior scrotal (labial) branches of ilioinguinal nerve


Right upper quadrant
Left upper quadrant
Right lower quadrant
Left lower quadrant

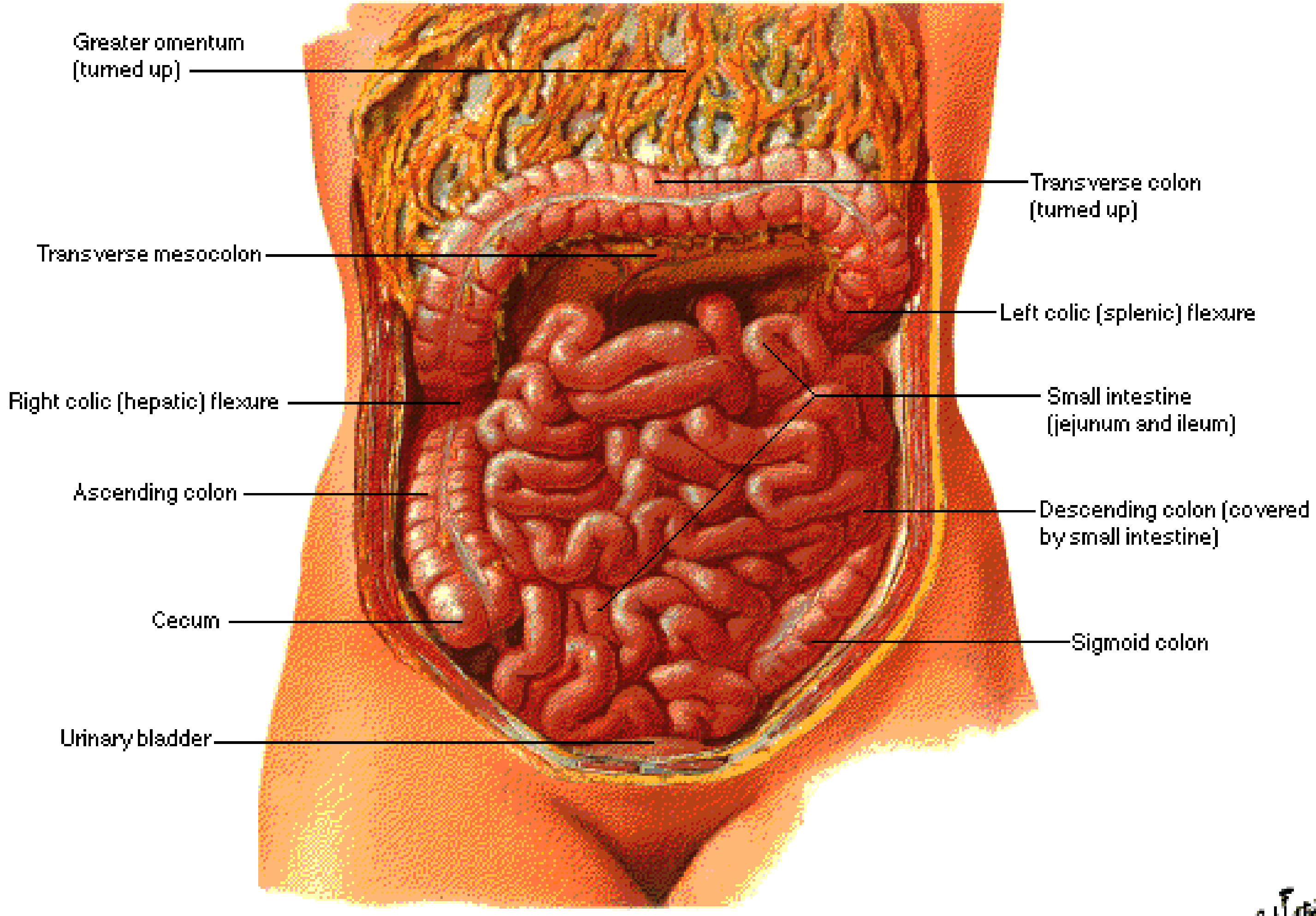


Right lateral rectus plane (semilunar line)
Left lateral rectus plane (semilunar line)
Right midinguinal plane
Left midinguinal plane
Epigastric region
Right hypochondriac region
Left hypochondriac region
Transpyloric plane
Subcostal plane
Umbilical region
Right lumbar (lateral) region
Left lumbar (lateral) region
Intertubercular plane
Interspinous plane
Right inguinal region
Left inguinal region
Hypogastric (pubic) region
1
2
3
4
5
6
7
8
9
10
T12
L1
L2
L3
L5

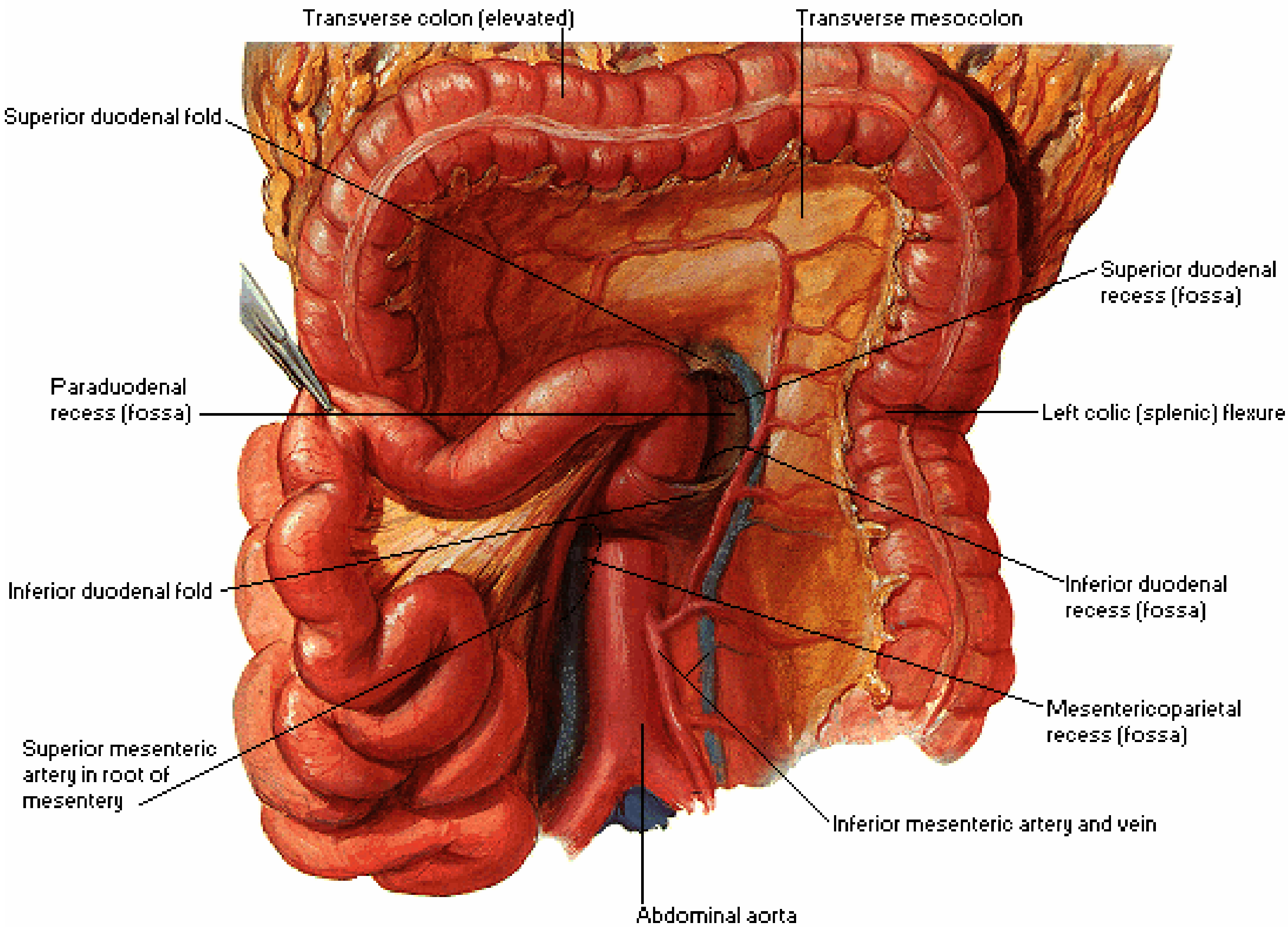

Falciform ligament
Left lobe of liver
Stomach
Right lobe of liver
Gallbladder
Greater omentum overlying transverse colon and small intestine (jejunum and ileum)

Greater Omentum and Abdominal Viscera

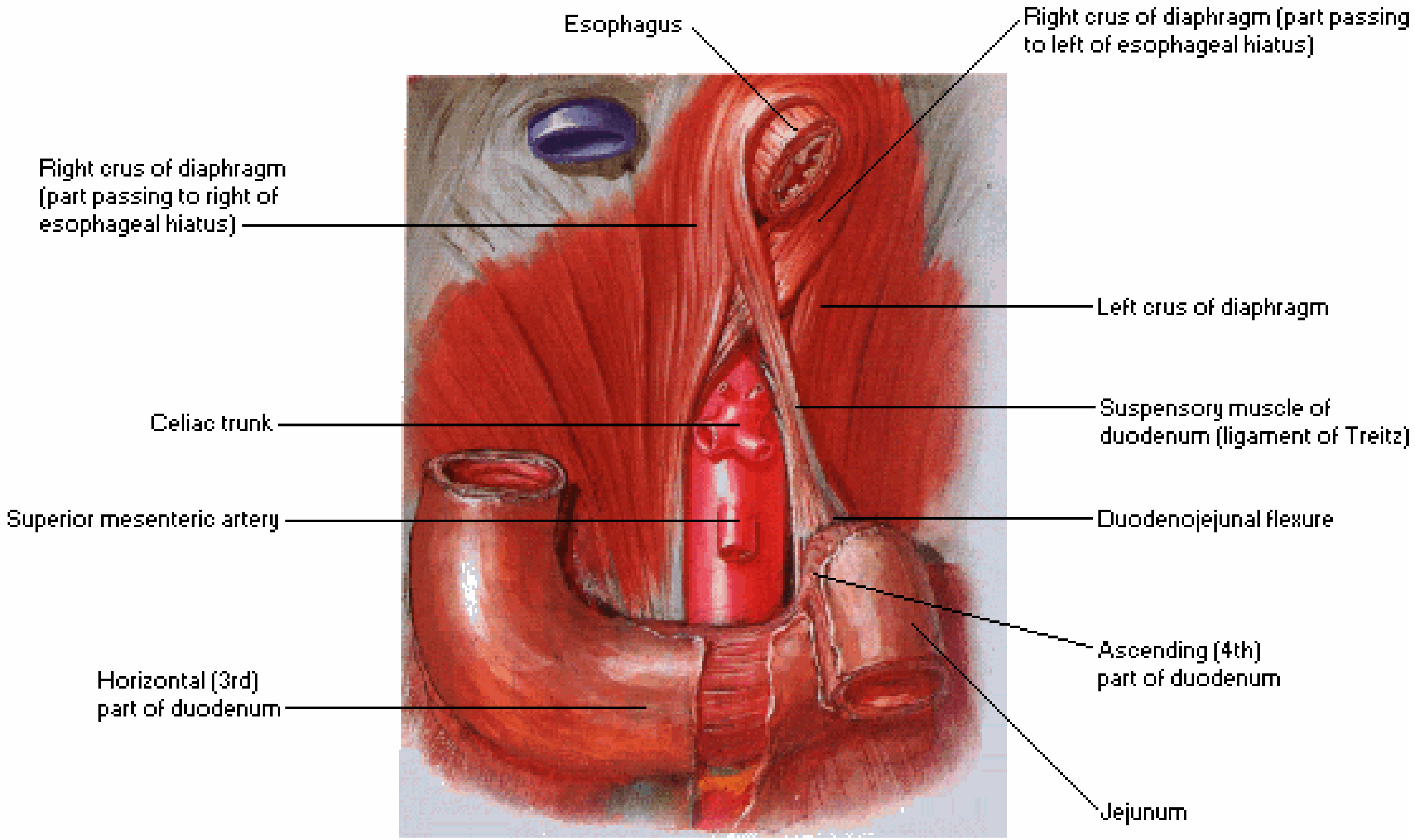
Omentum Raised



Transverse Colon Elevated

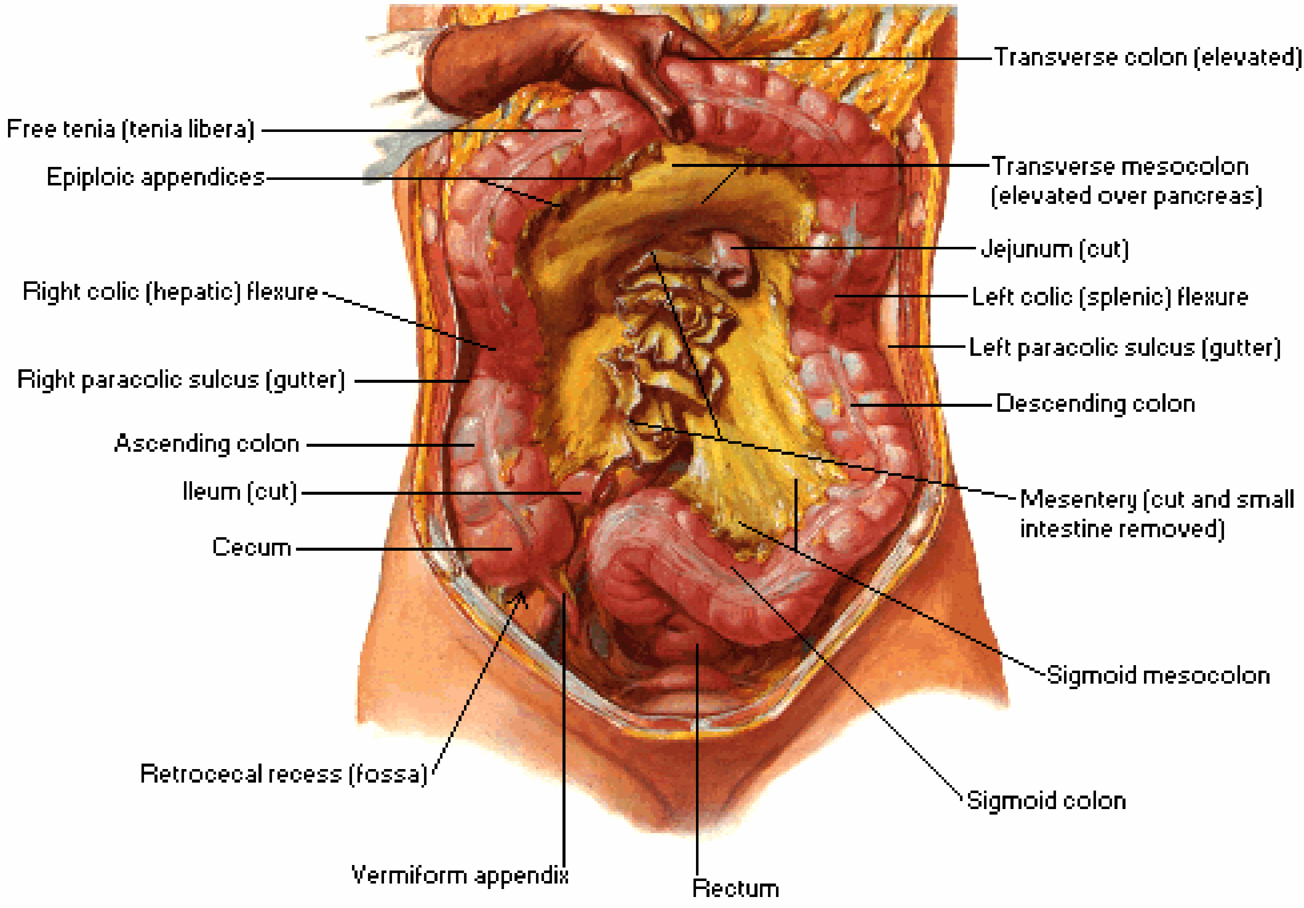


Suspensory Muscle of Duodenum

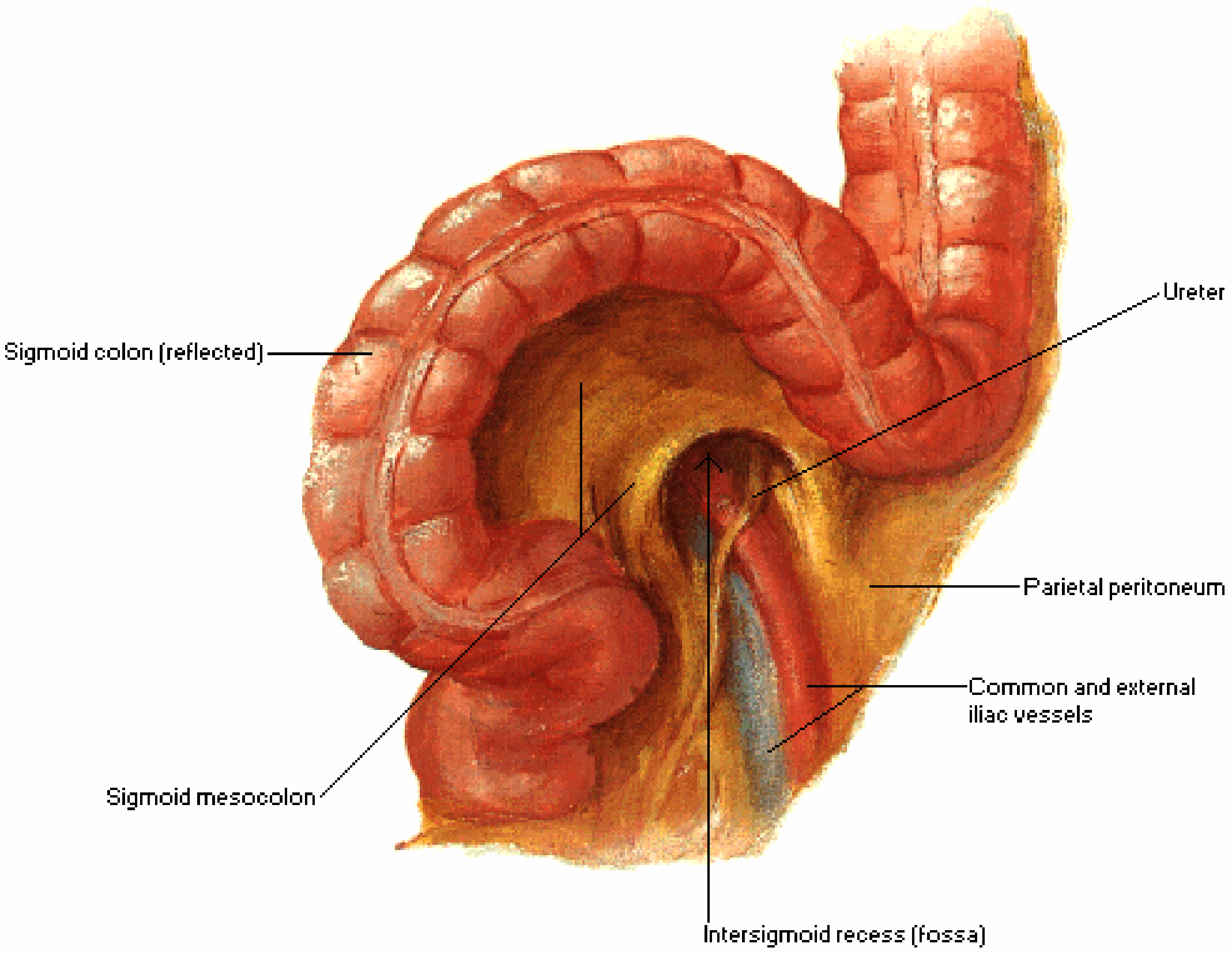


Exposure of suspensory muscle of duodenum (ligament of Treitz)

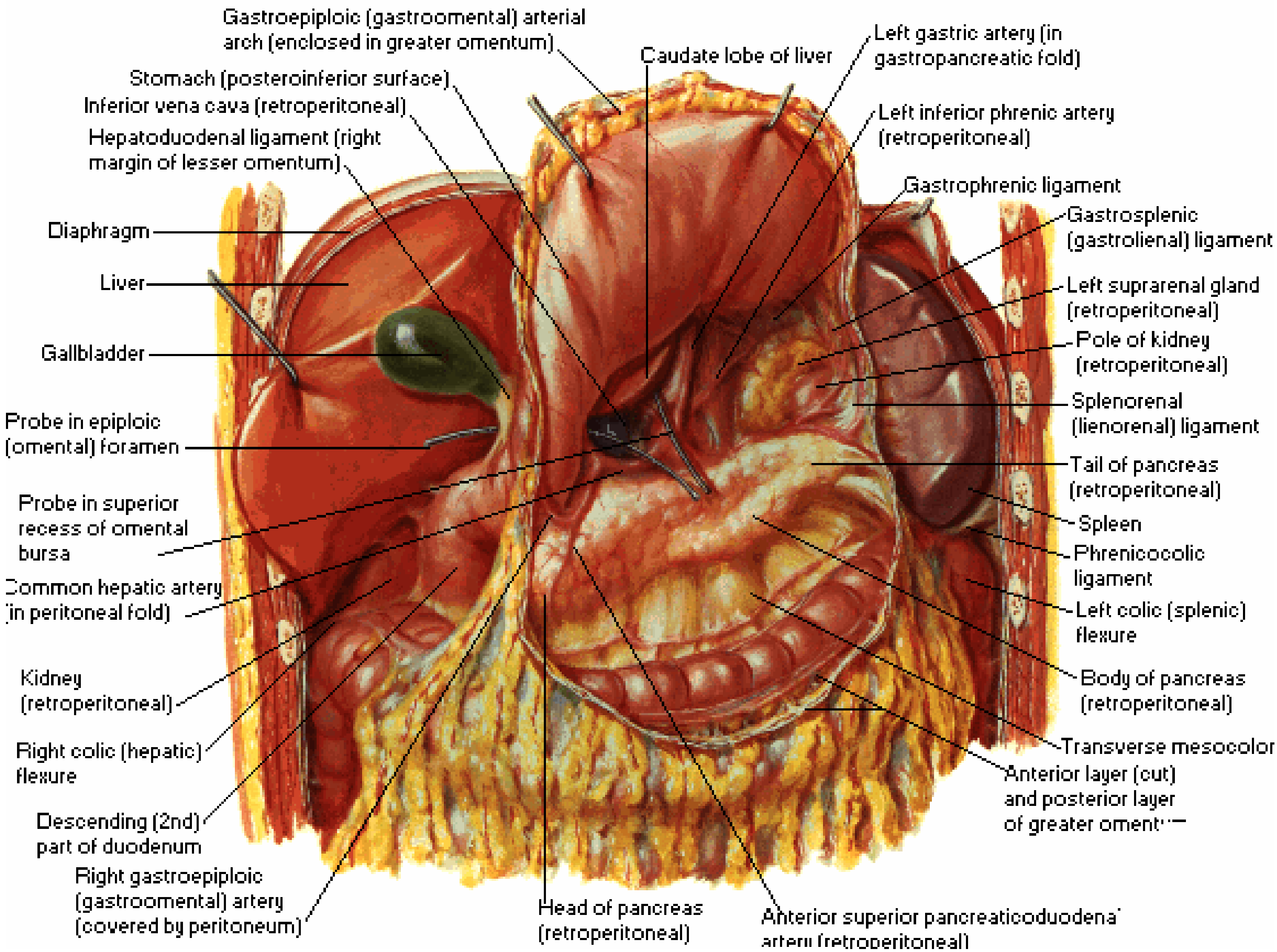
Small Intestine Removed



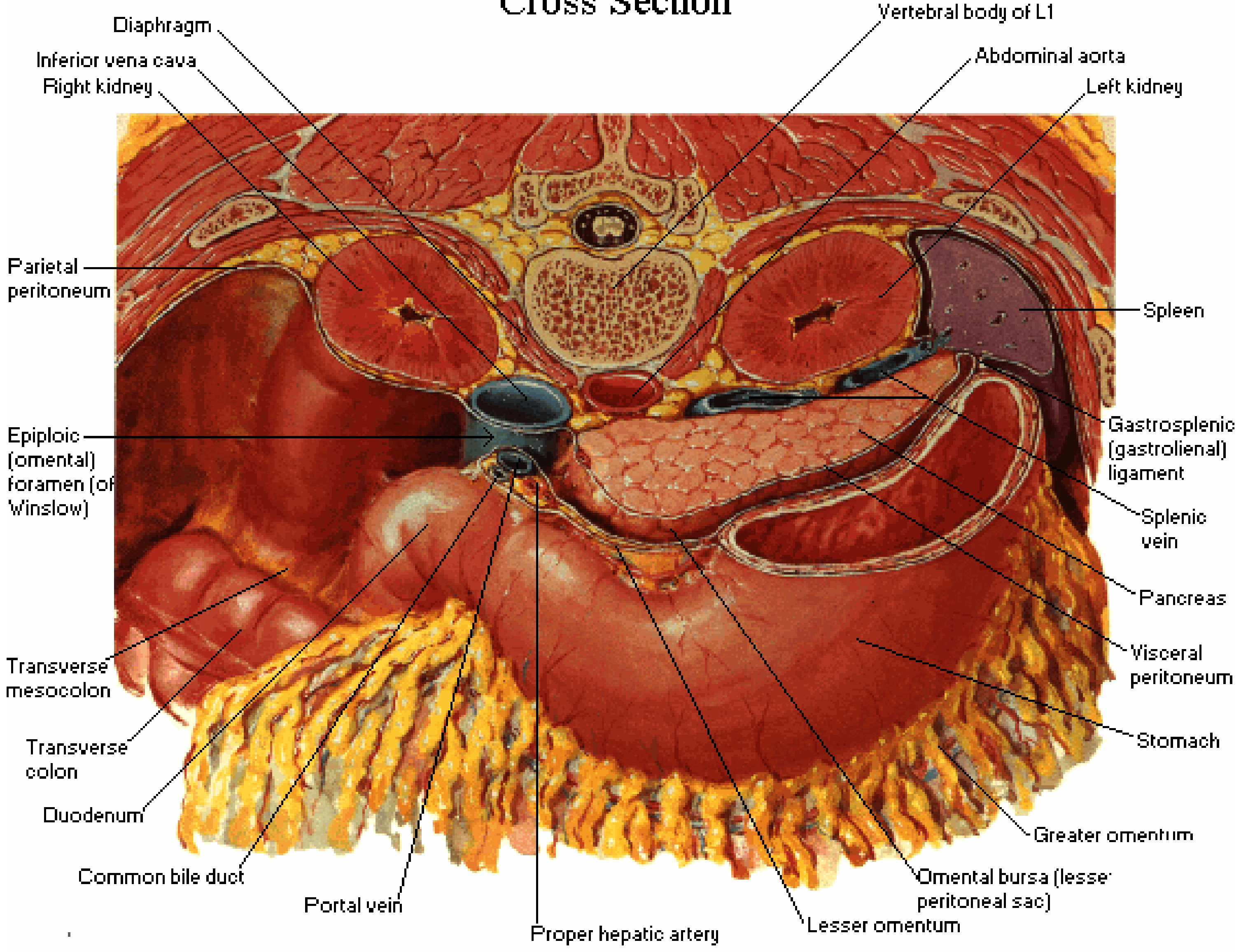
Sigmoid Colon Reflected

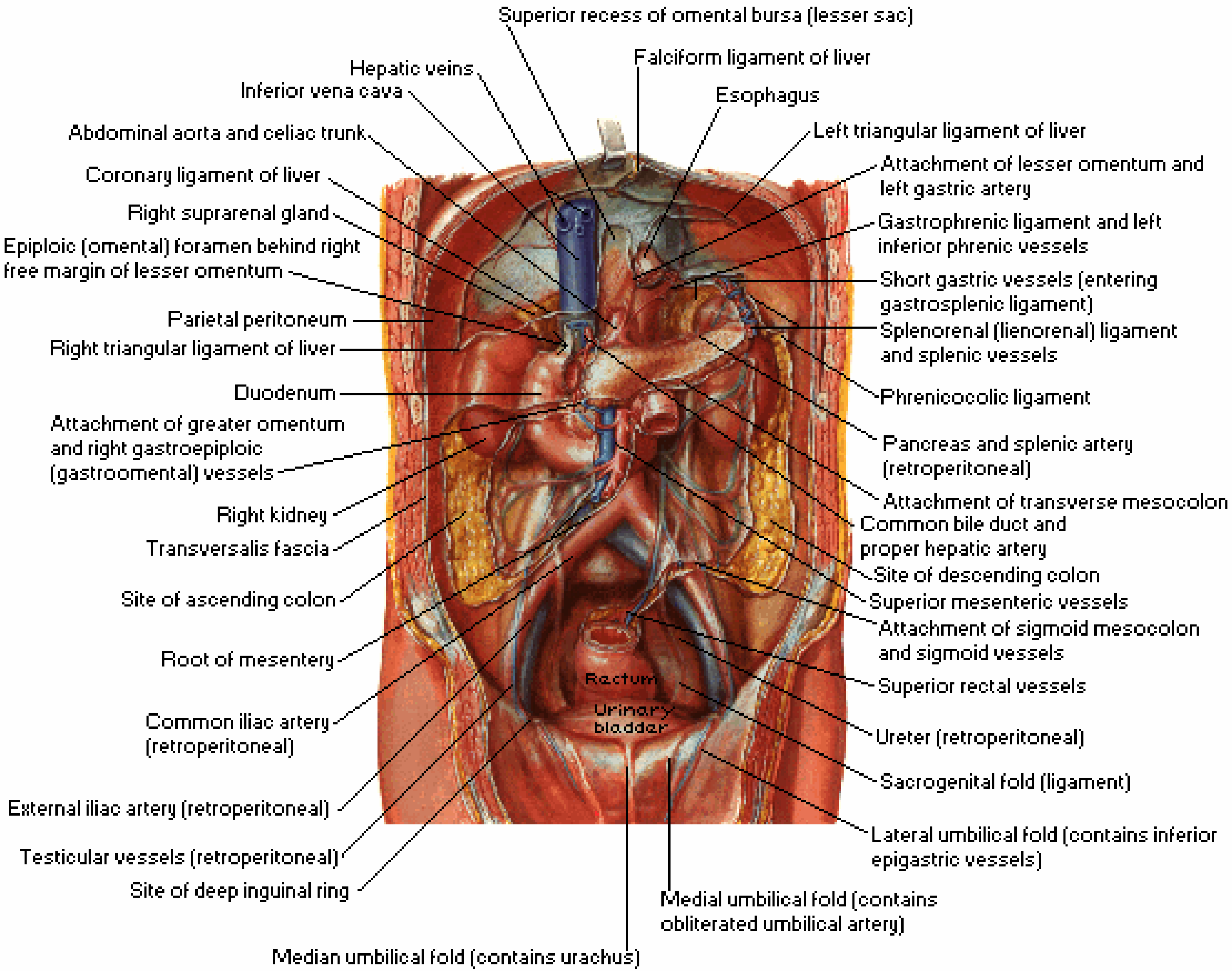


Stomach Reflected



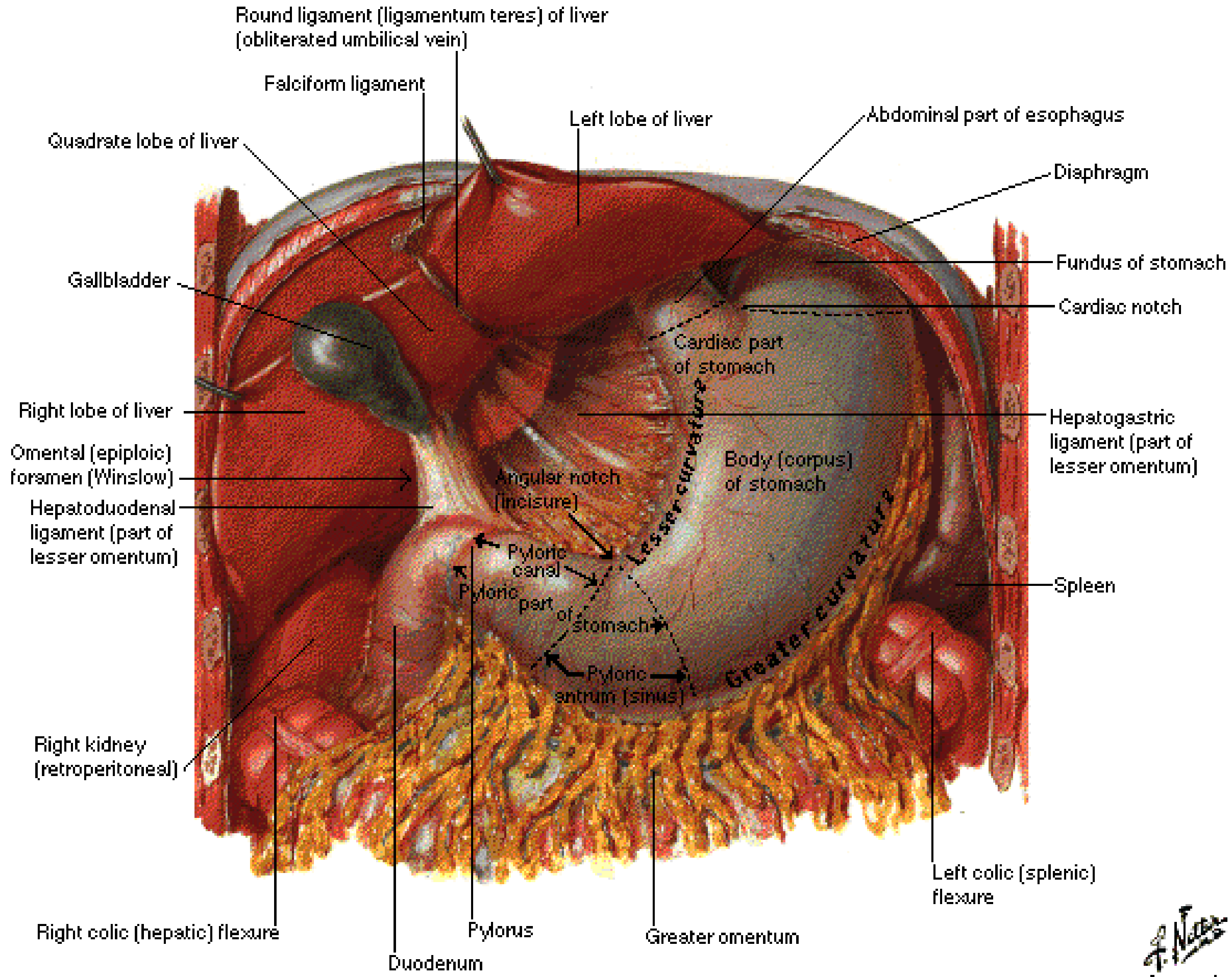
Cross Section



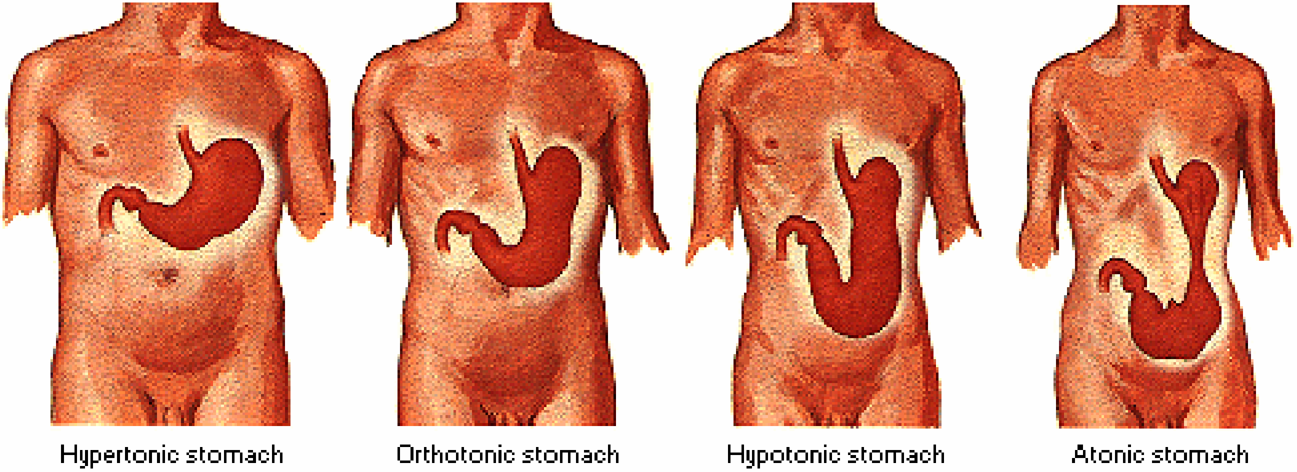


Superior recess of omental bursa (lesser sac)
Falciform ligament of liver
Hepatic veins
Inferior vena cava
Esophagus
Abdominal aorta and celiac trunk
Left triangular ligament of liver
Coronary ligament of liver
Attachment of lesser omentum and left gastric artery
Right suprarenal gland
Gastrophrenic ligament and left inferior phrenic vessels
Epiploic (omental) foramen behind right free margin of lesser omentum
Short gastric vessels (entering gastrosplenic ligament)
Parietal peritoneum
Splenorenal (lienorenal) ligament and splenic vessels
Right triangular ligament of liver
Duodenum
Phrenicocolic ligament
Attachment of greater omentum and right gastroepiploic (gastroomental) vessels
Pancreas and splenic artery (retroperitoneal)
Attachment of transverse mesocolon
Right kidney
Common bile duct and proper hepatic artery
Transversalis fascia
Site of descending colon
Site of ascending colon
Superior mesenteric vessels
Attachment of sigmoid mesocolon and sigmoid vessels
Root of mesentery
Rectum
Superior rectal vessels
Urinary bladder
Common iliac artery (retroperitoneal)
Ureter (retroperitoneal)
Sacrogenital fold (ligament)
External iliac artery (retroperitoneal)
Lateral umbilical fold (contains inferior epigastric vessels)
Testicular vessels (retroperitoneal)
Site of deep inguinal ring
Medial umbilical fold (contains obliterated umbilical artery)
Median umbilical fold (contains urachus)

Stomach in Situ

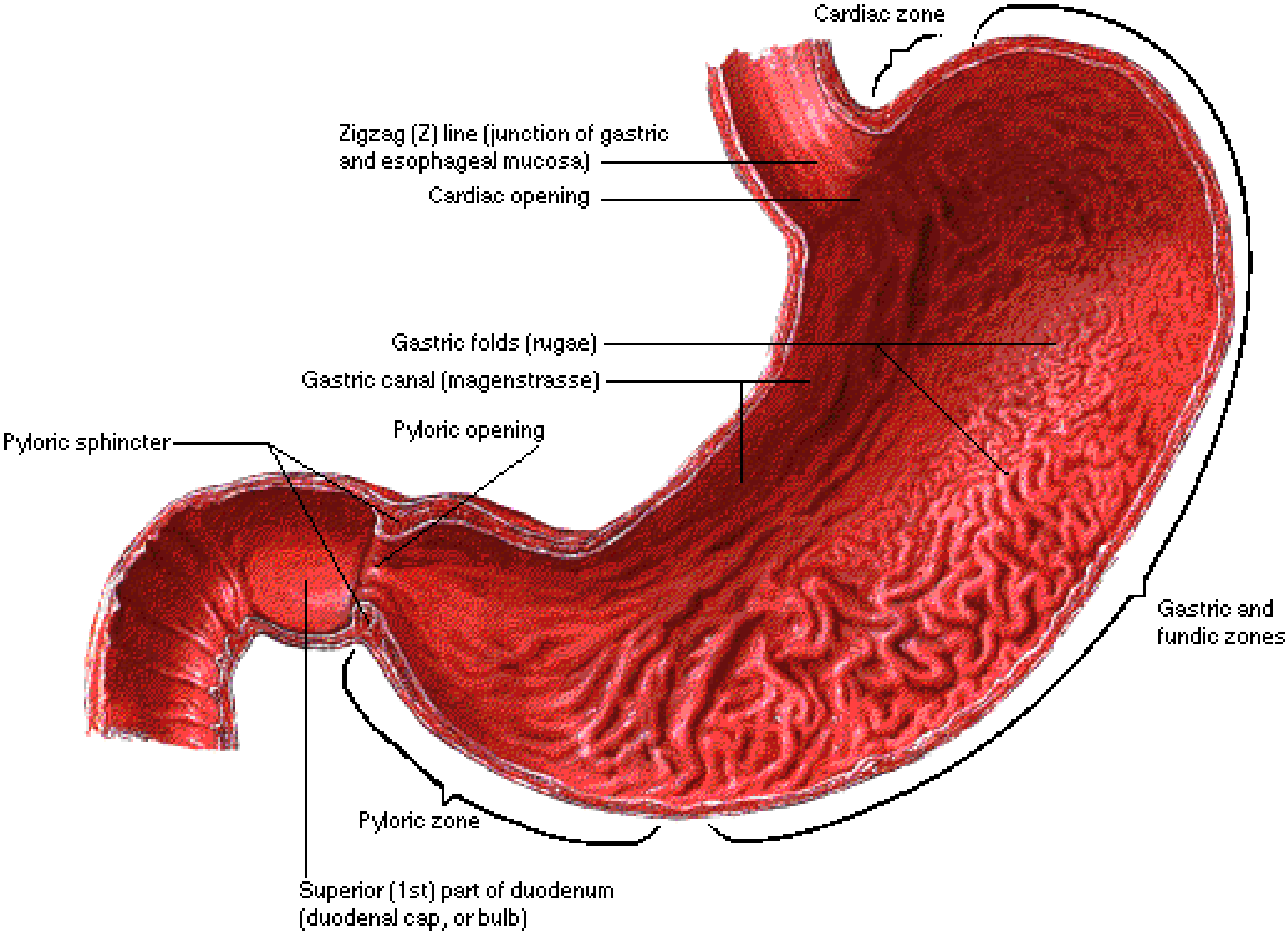


Variations in Position and Contour

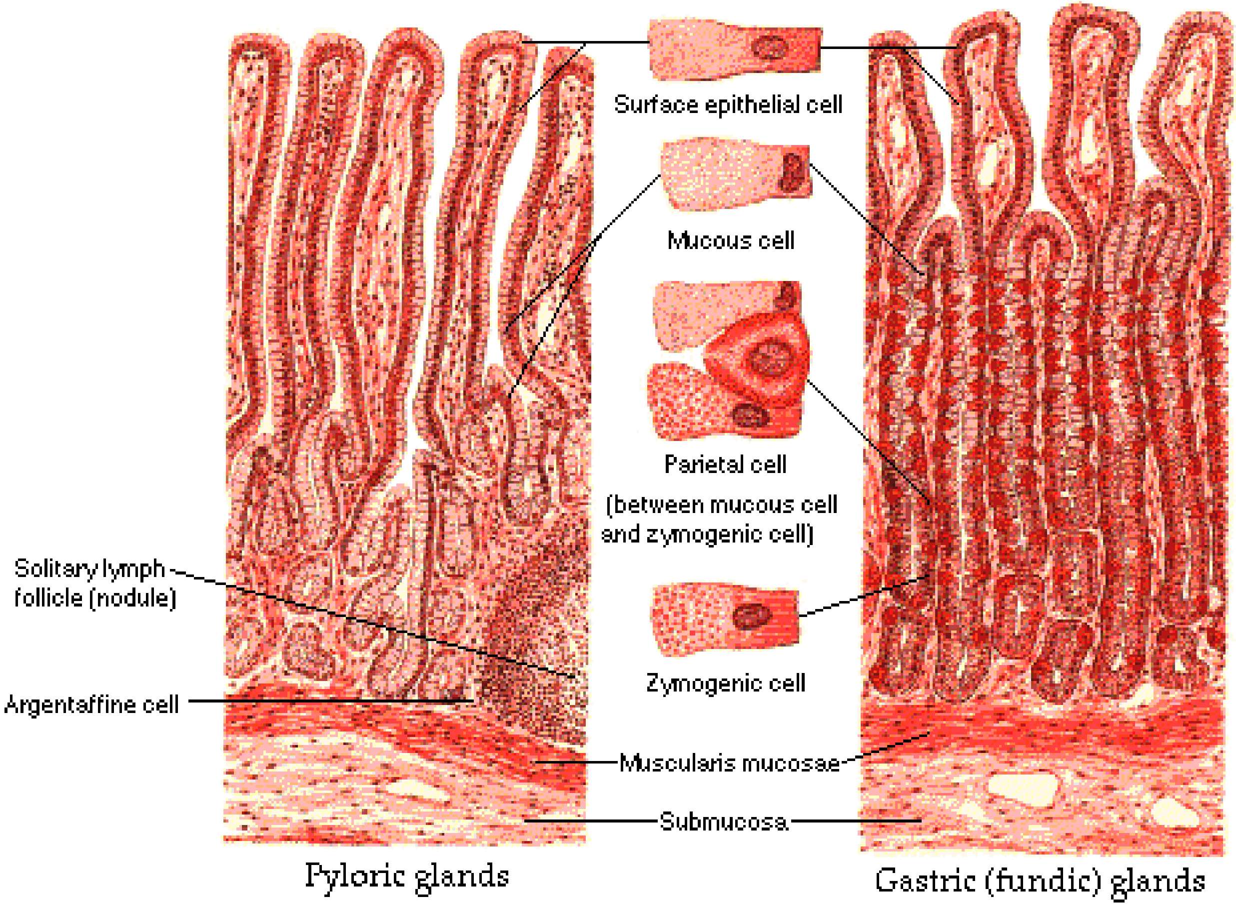


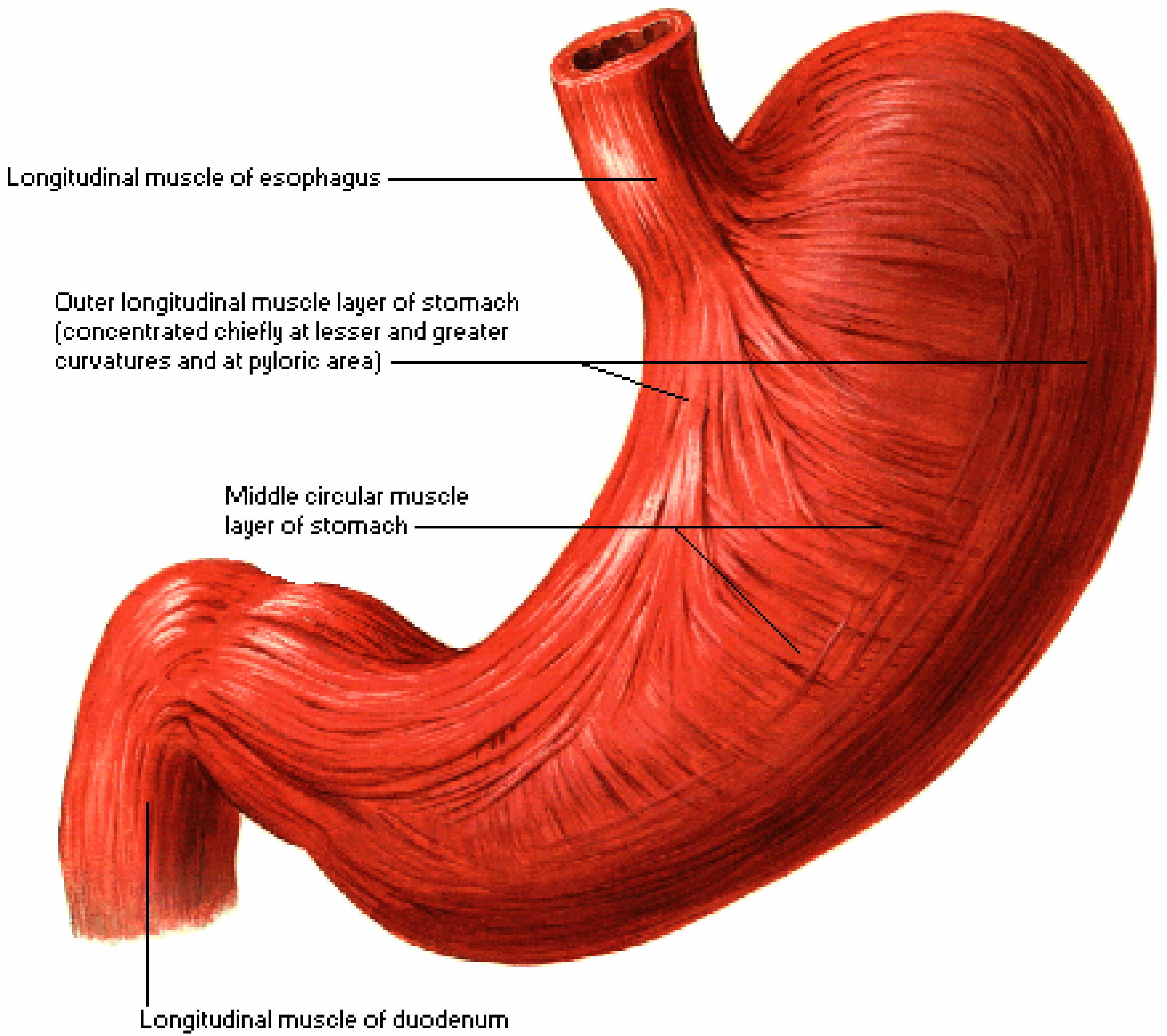
Variations of stomach in relation to body habitus

Mucosa of Stomach

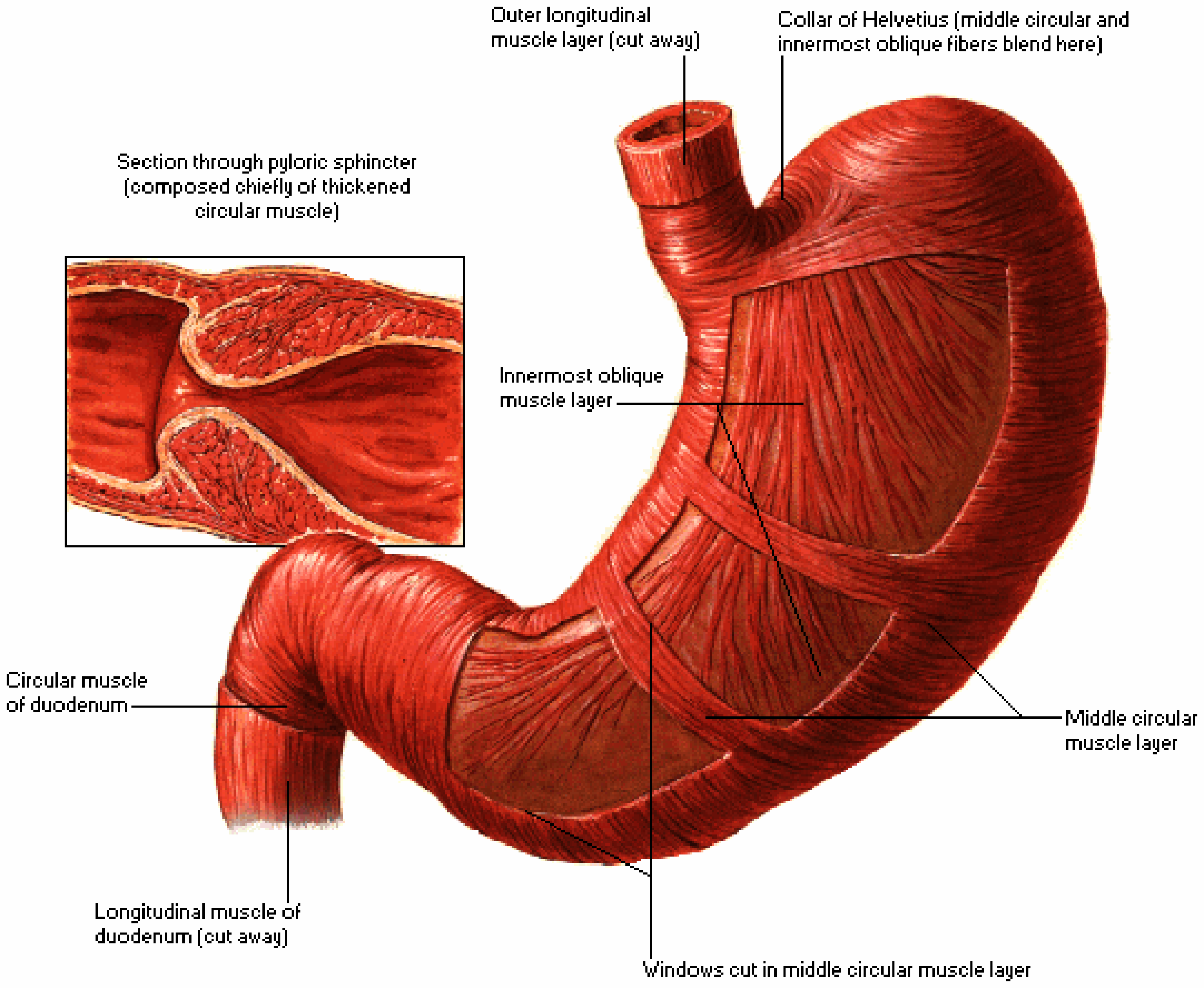


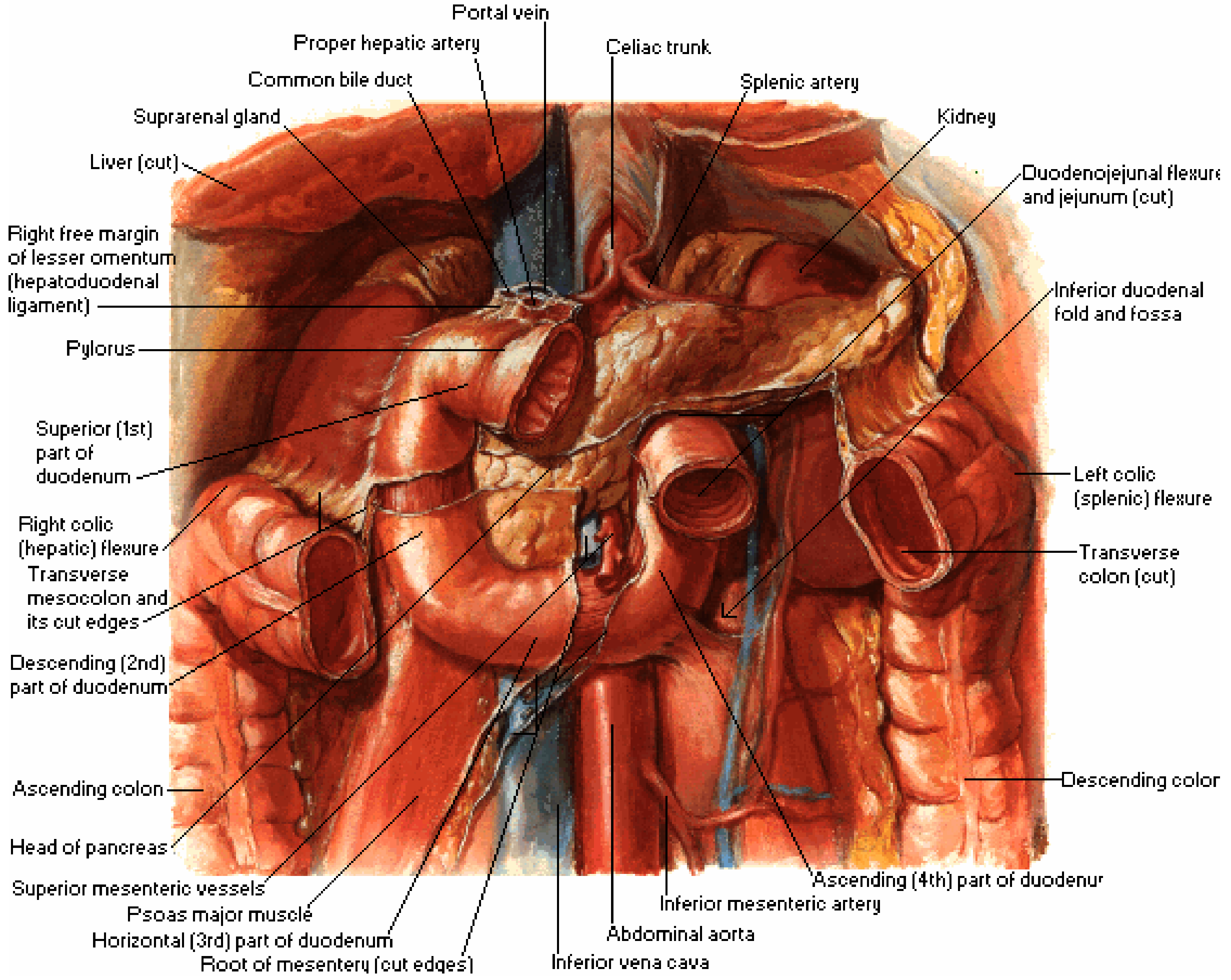
Mucosa of Stomach
Histology



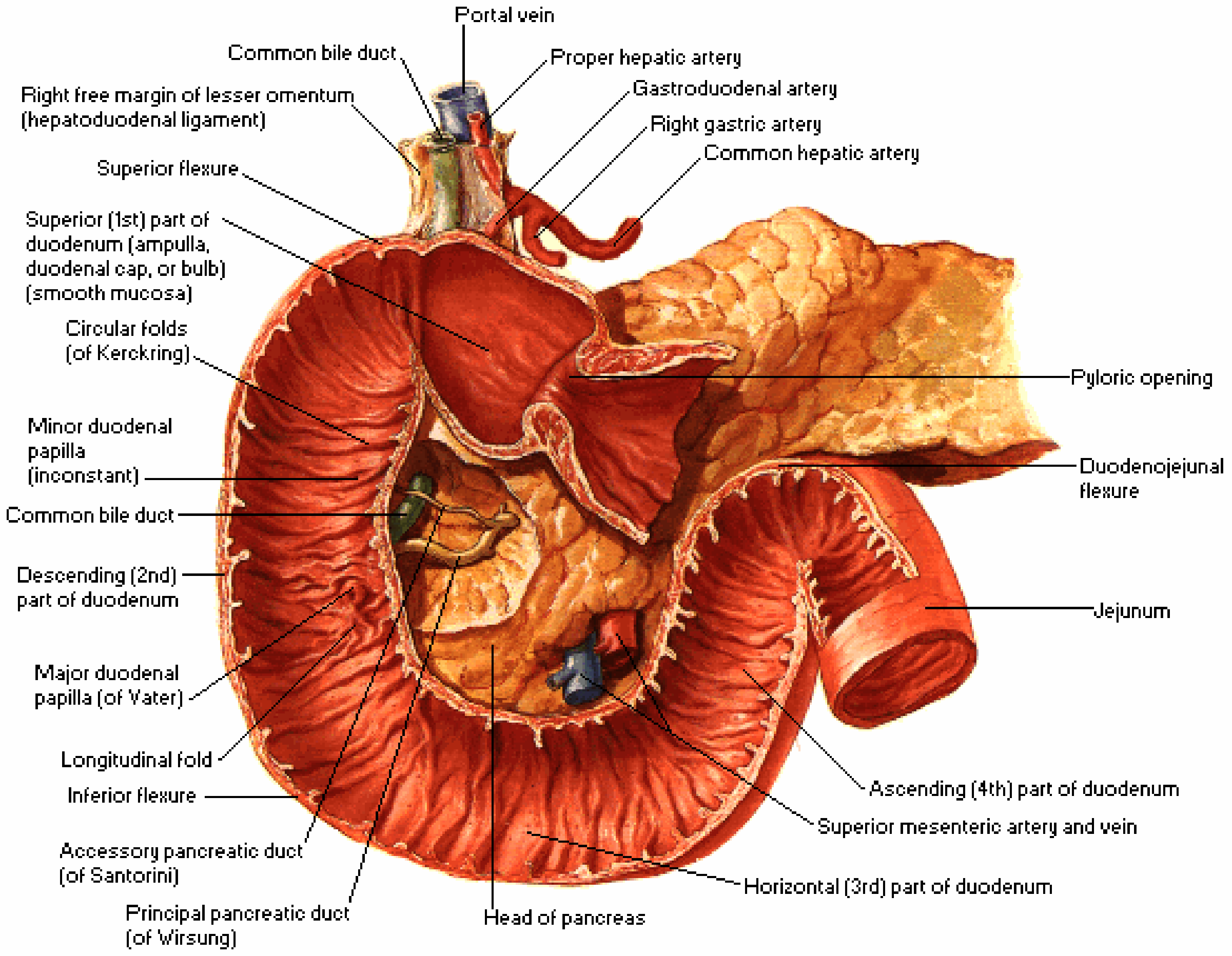


Longitudinal muscle of esophagus
Outer longitudinal muscle layer of stomach (concentrated chiefly at lesser and greater curvatures and at pyloric area)
Middle circular muscle layer of stomach
Longitudinal muscle of duodenum


Outer longitudinal muscle layer (cut away)
Collar of Helvetius (middle circular and innermost oblique fibers blend here)
Section through pyloric sphincter (composed chiefly of thickened circular muscle)
Innermost oblique muscle layer
Circular muscle of duodenum
Middle circular muscle layer
Longitudinal muscle of duodenum (cut away)
Windows cut in middle circular muscle layer

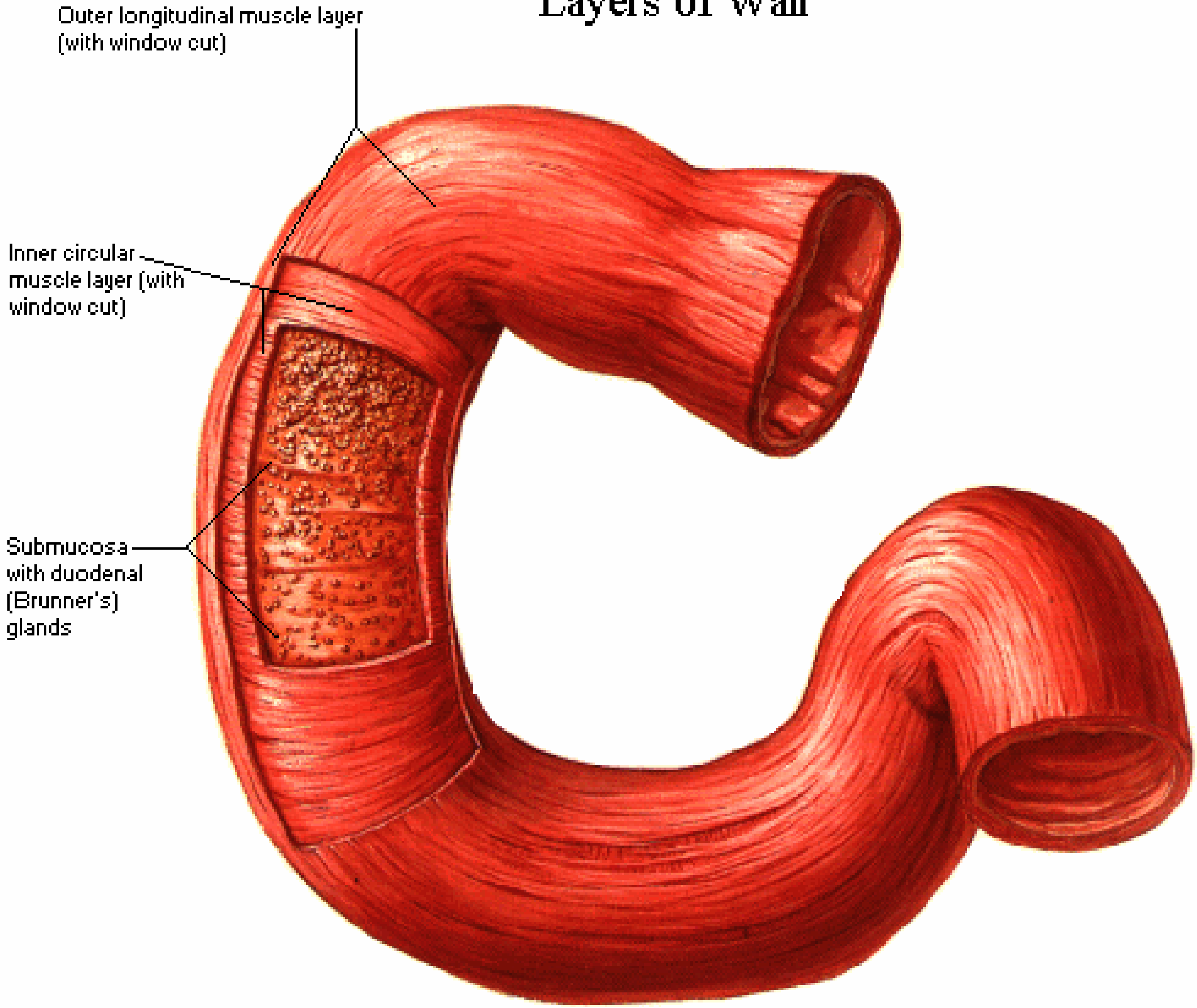


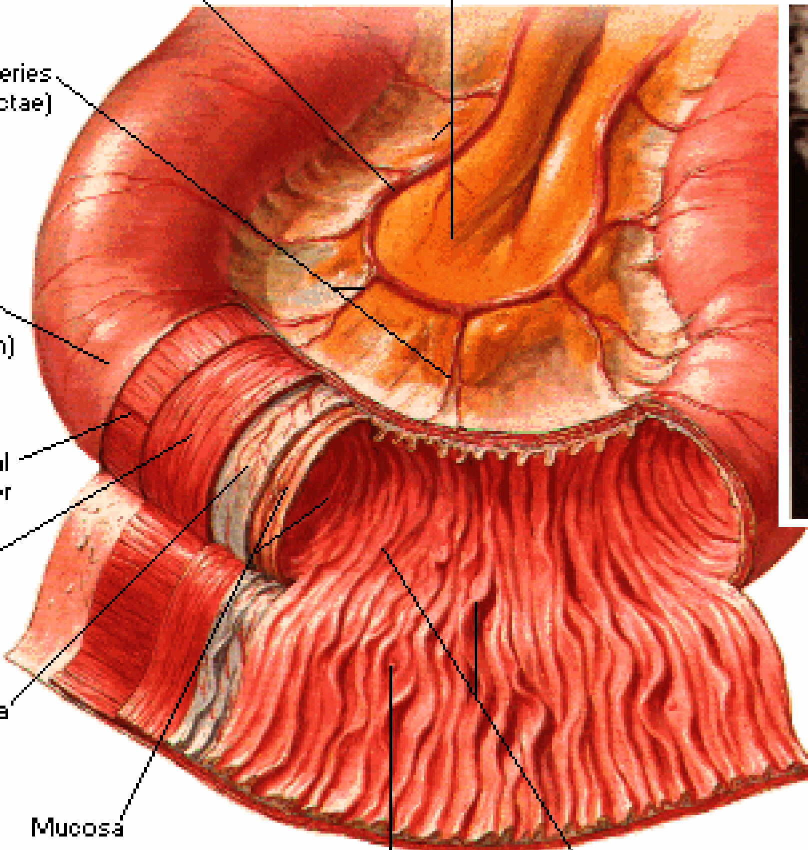
Portal vein
Proper hepatic artery
Celiac trunk
Common bile duct
Splenic artery
Suprarenal gland
Kidney
Liver (cut)
Duodenojejunal flexur
and jejunum (cut)
Right free margin
of lesser omentum
(hepatoduodenal
ligament)
Inferior duodenal
fold and fossa
Pylorus
Superior (1st)
part of
duodenum
Left colic
(splenic) flexure
Right colic
(hepatic) flexure
Transverse
colon (cut)
Transverse
mesocolon and
its cut edges
Descending (2nd)
part of duodenum
Ascending colon
Descending colo
Head of pancreas
Ascending (4th) part of duodenu
Superior mesenteric vessels
Inferior mesenteric artery
Psoas major muscle
Horizontal (3rd) part of duodenum
Abdominal aorta
Root of mesentery (cut edges)
Inferior vena cava



Portal vein
Common bile duct
Proper hepatic artery
Right free margin of lesser omentum (hepatoduodenal ligament)
Gastroduodenal artery
Right gastric artery
Common hepatic artery
Superior flexure
Superior (1st) part of duodenum (ampulla, duodenal cap, or bulb) (smooth mucosa)
Circular folds (of Kerckring)
Pyloric opening
Minor duodenal papilla (inconstant)
Duodenojejunal flexure
Common bile duct
Descending (2nd) part of duodenum
Jejunum
Major duodenal papilla (of Vater)
Longitudinal fold
Inferior flexure
Ascending (4th) part of duodenum
Superior mesenteric artery and vein
Accessory pancreatic duct (of Santorini)
Horizontal (3rd) part of duodenum
Principal pancreatic duct (of Wirsung)
Head of pancreas

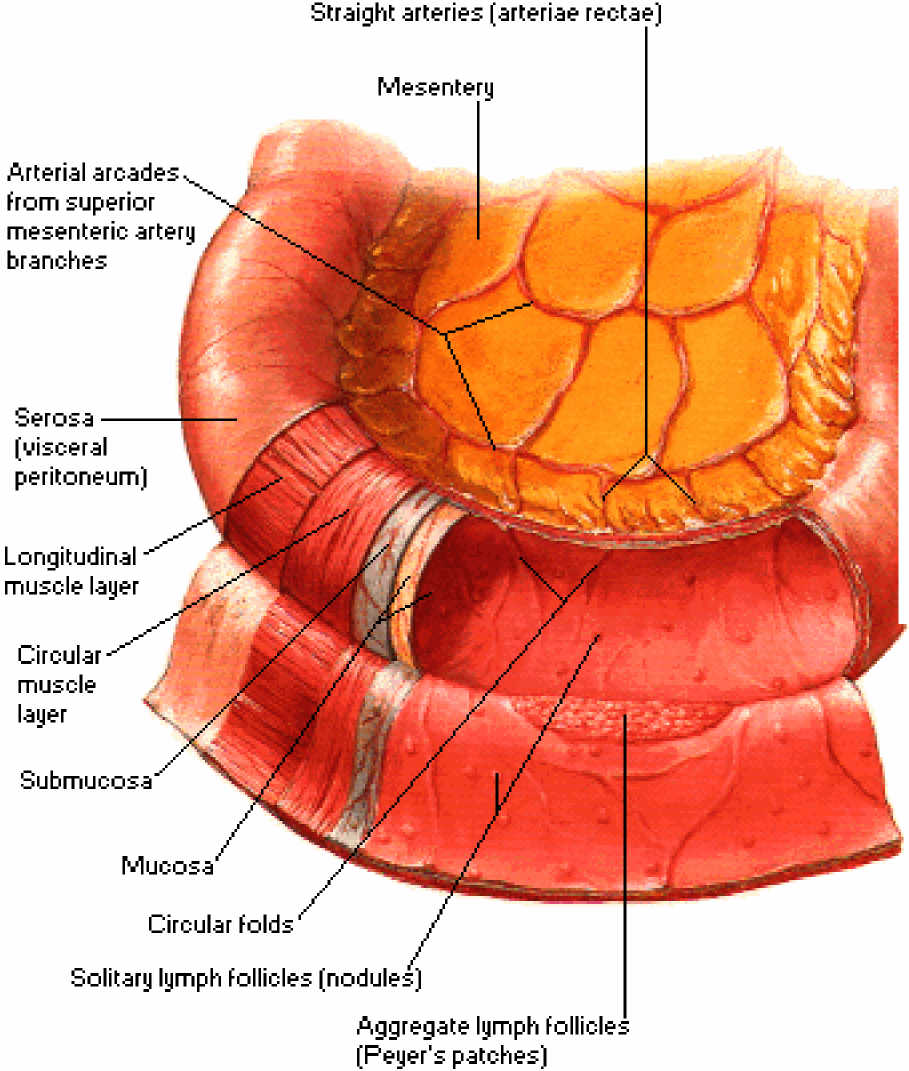
Layers of Wall







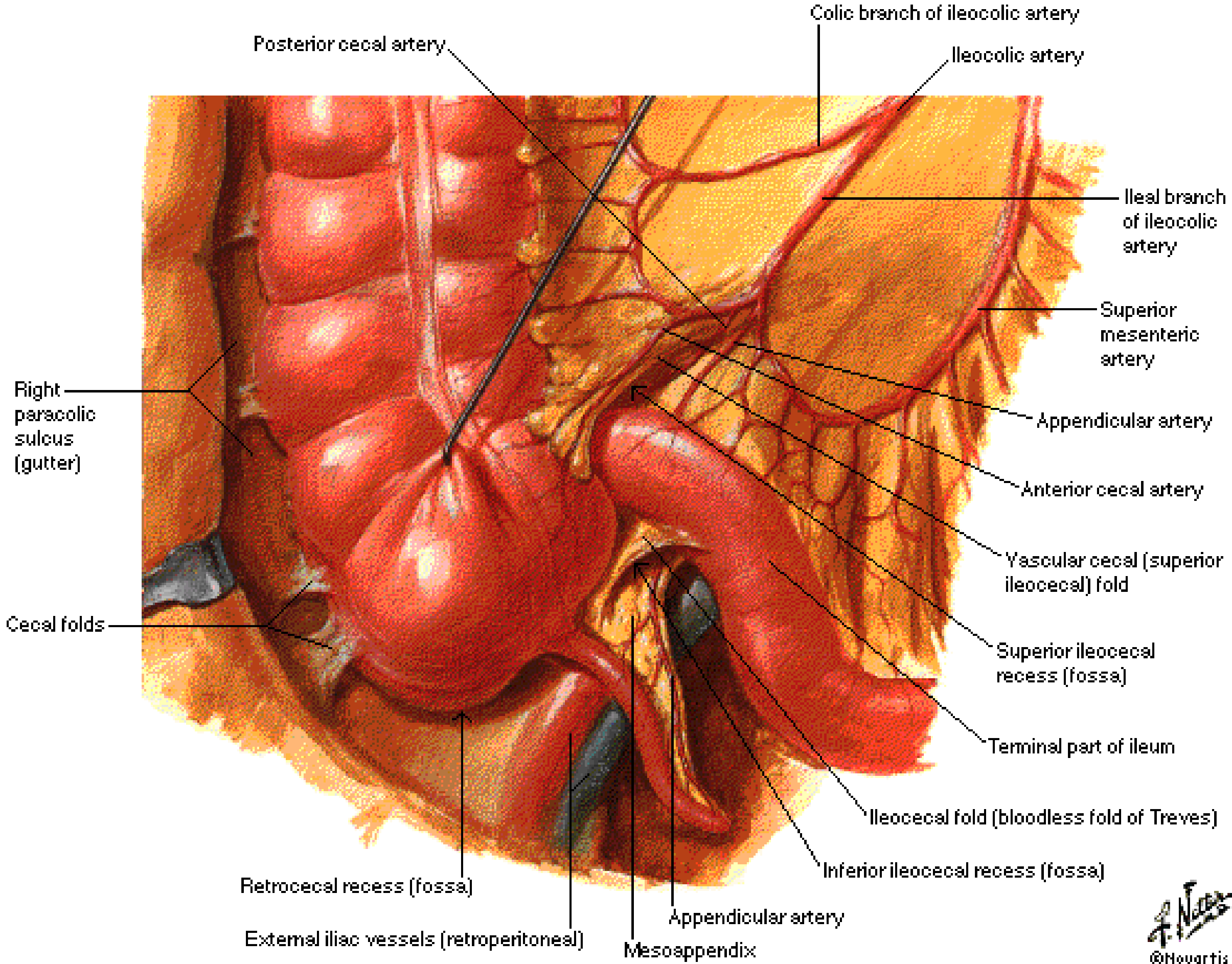
Barium radiograph of jejunum



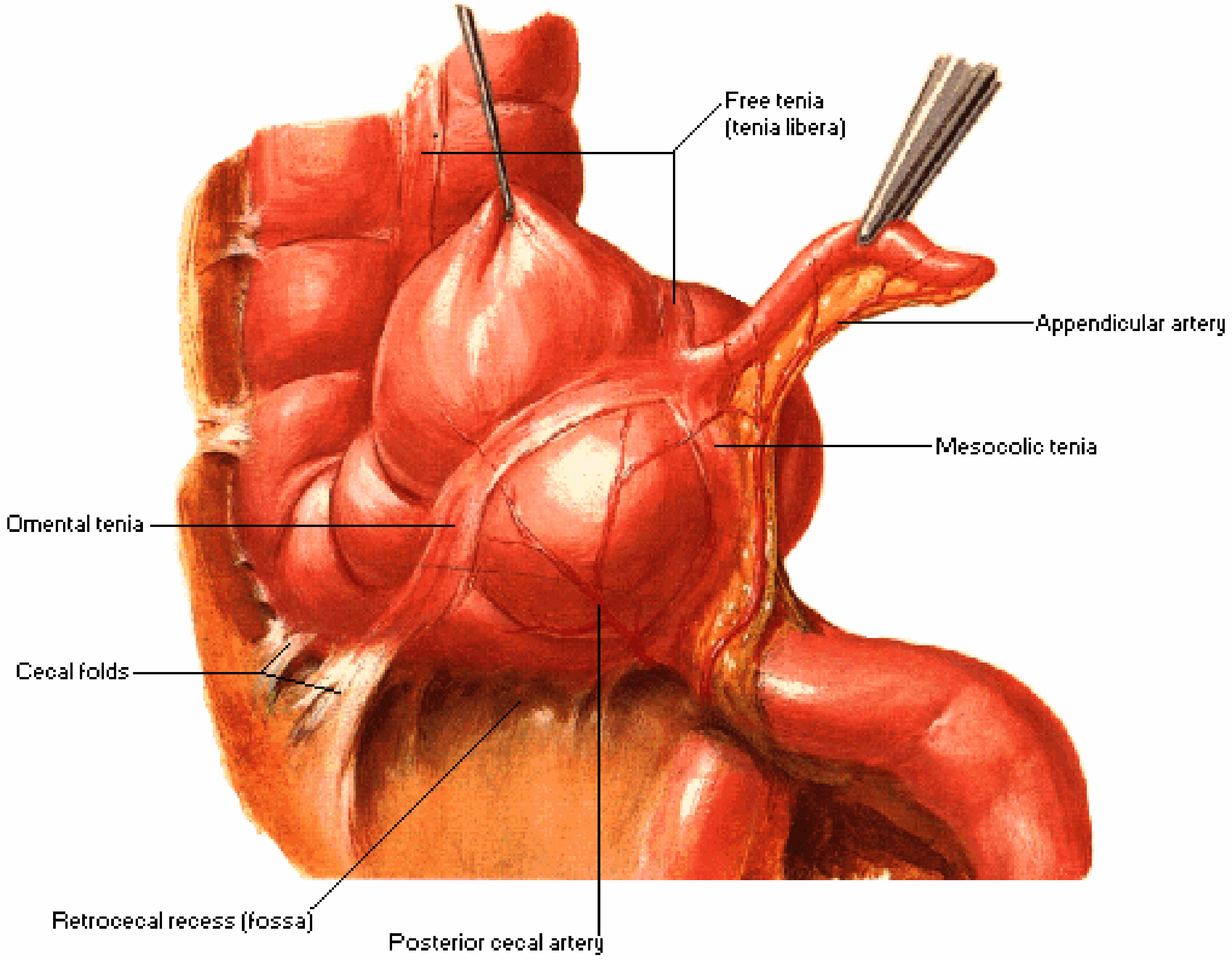


Barium radiograph of ileum

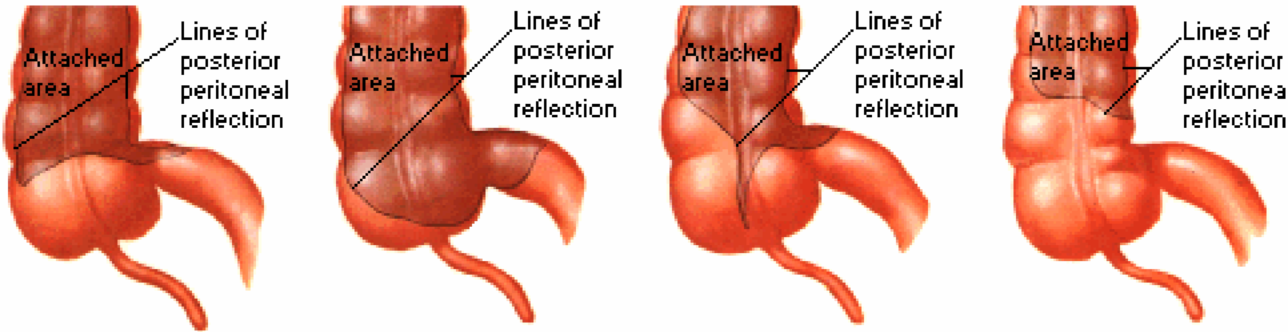
Ileocecal Region



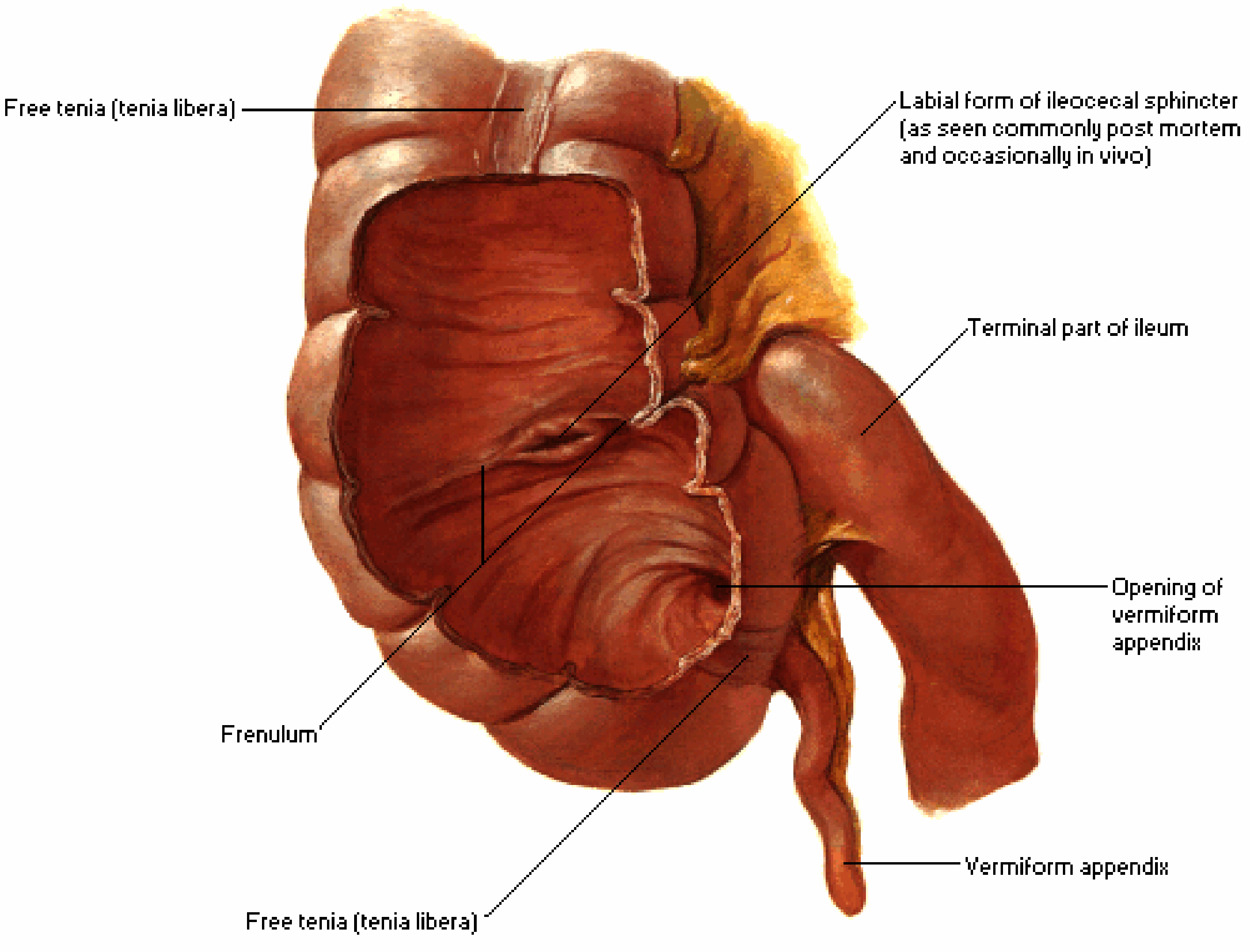
Retrocecal Recess Exposed



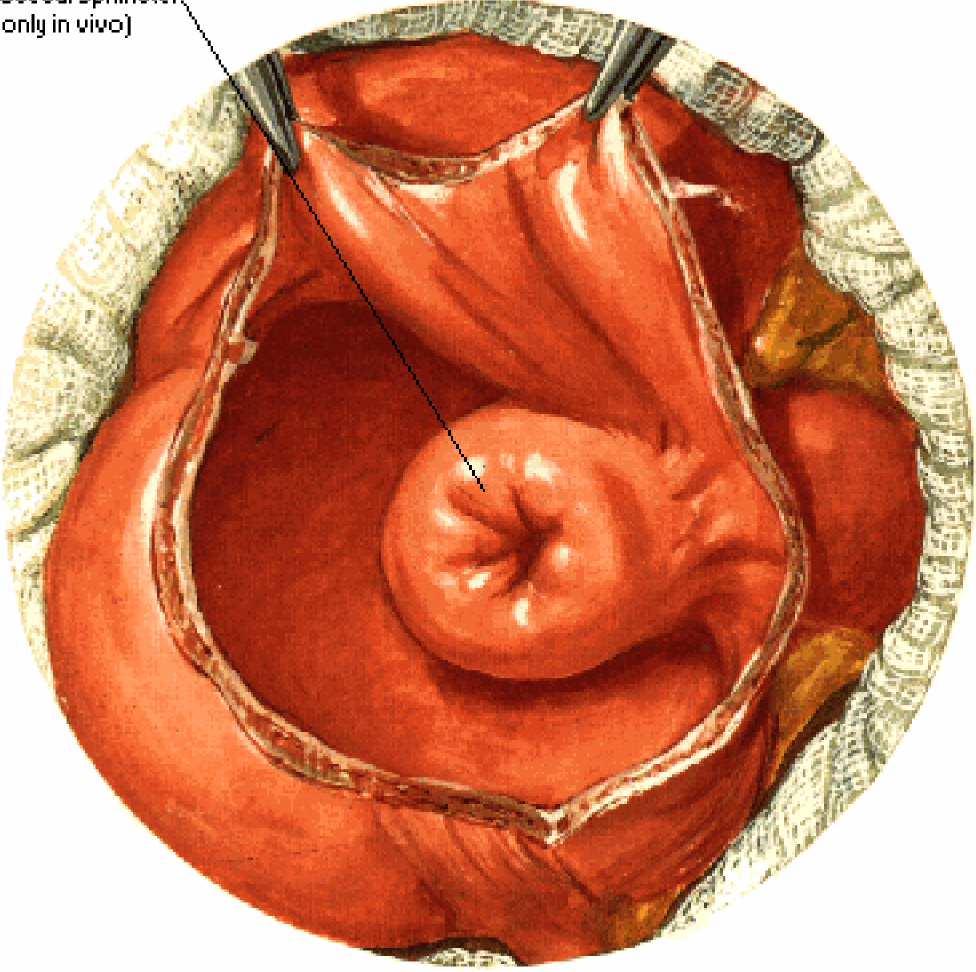
Variations in Posterior Peritoneal Attachment



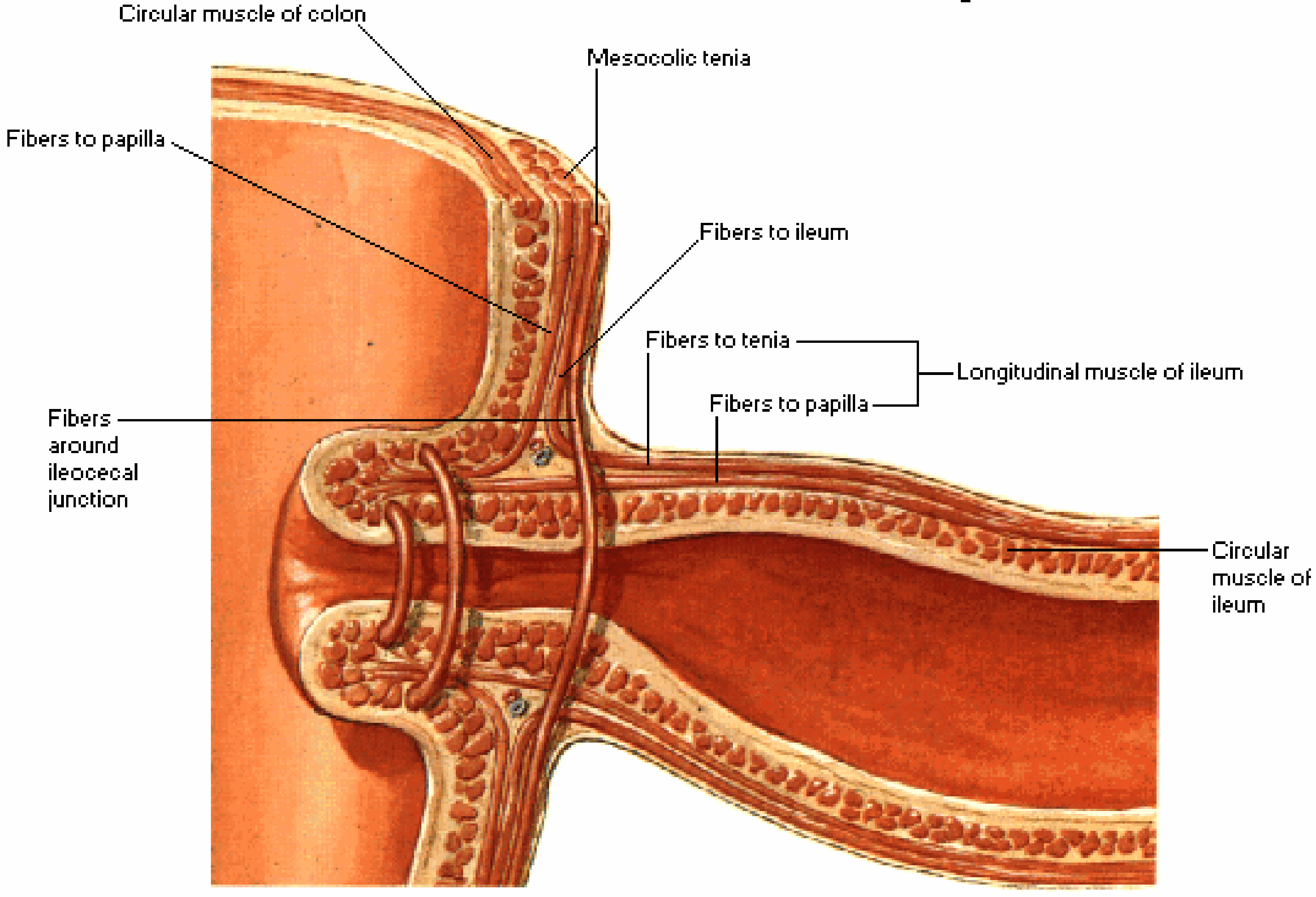
Labial Form of Ileocecal Sphincter



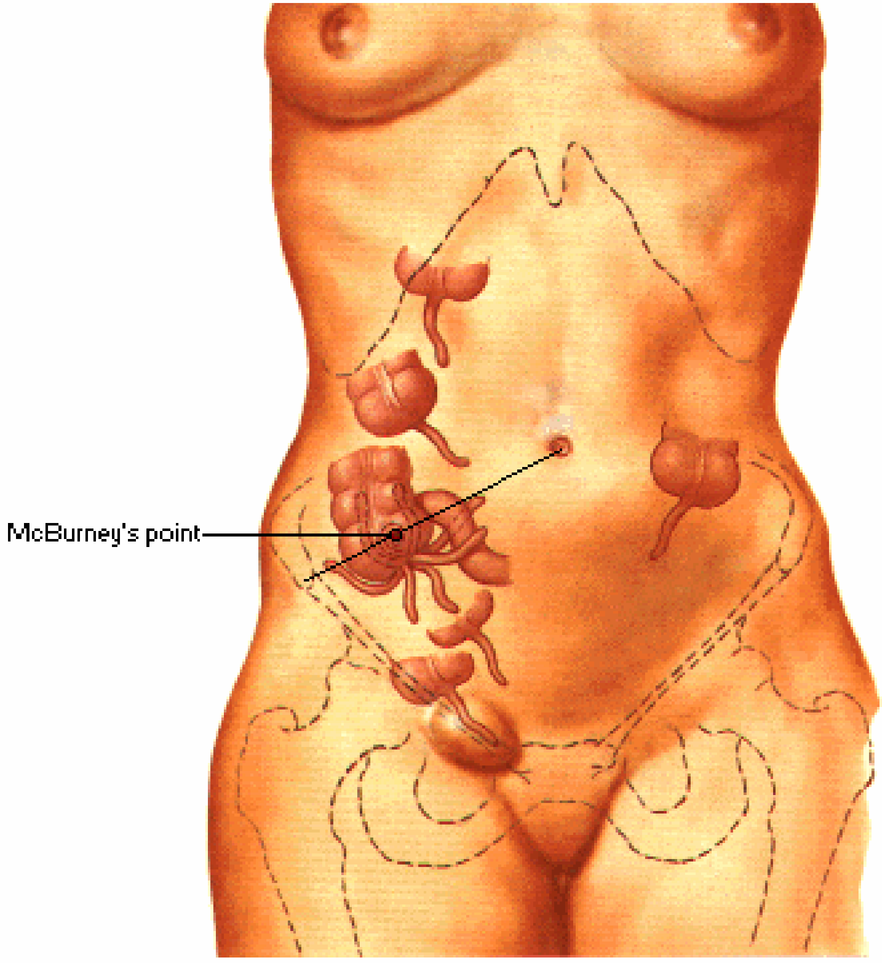
Papillary Form of Ileocecal Sphincter

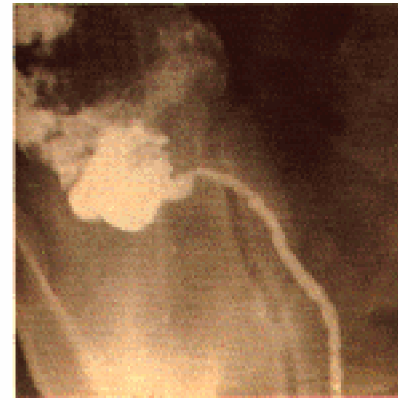


Schema of Muscle Fibers at Ileocecal Sphincter



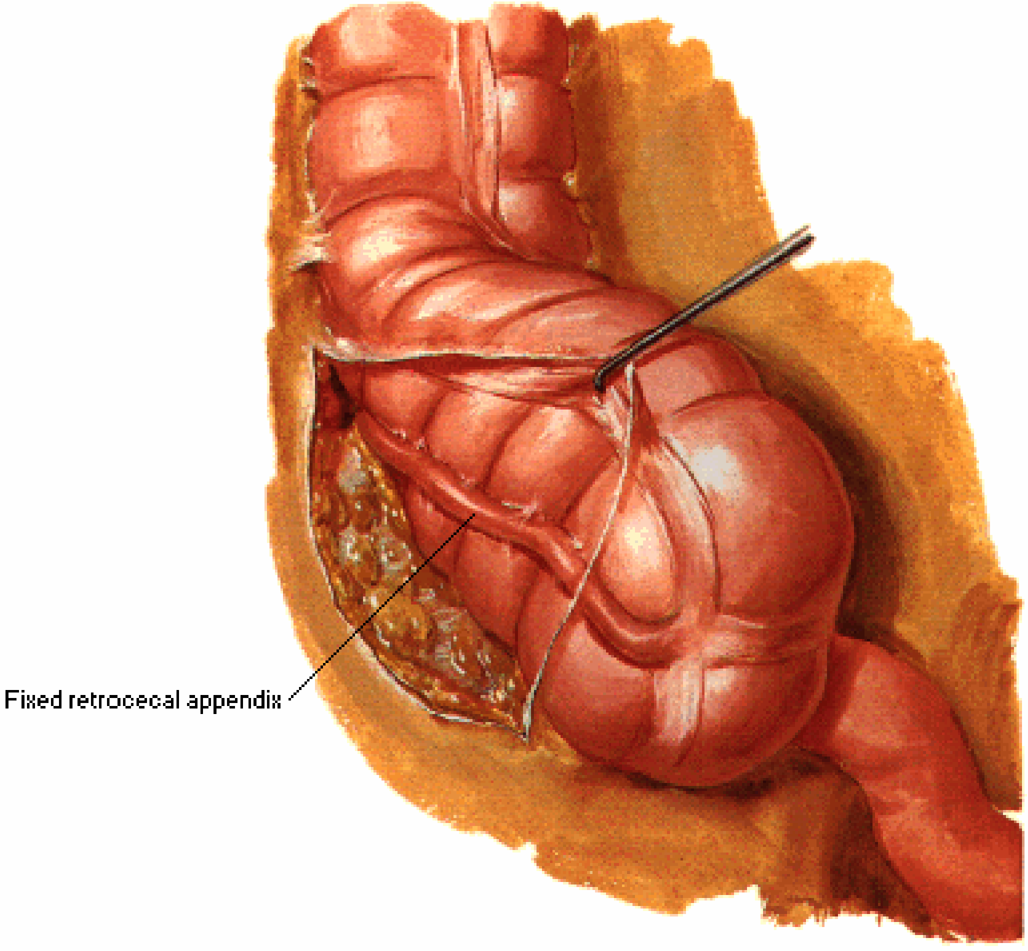
Variations in Position



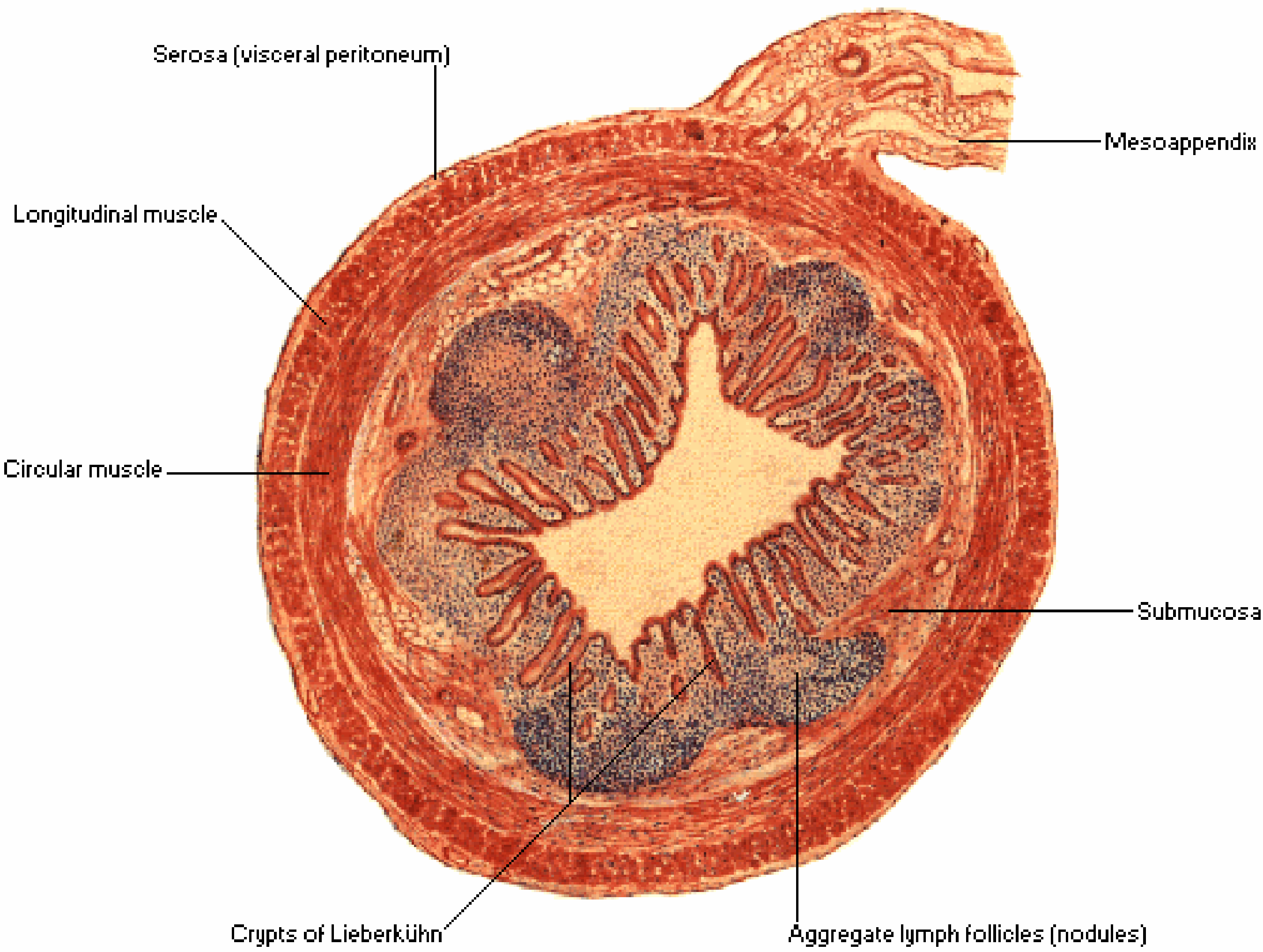


Unusually long appendix extending into pelvis (barium radiograph)

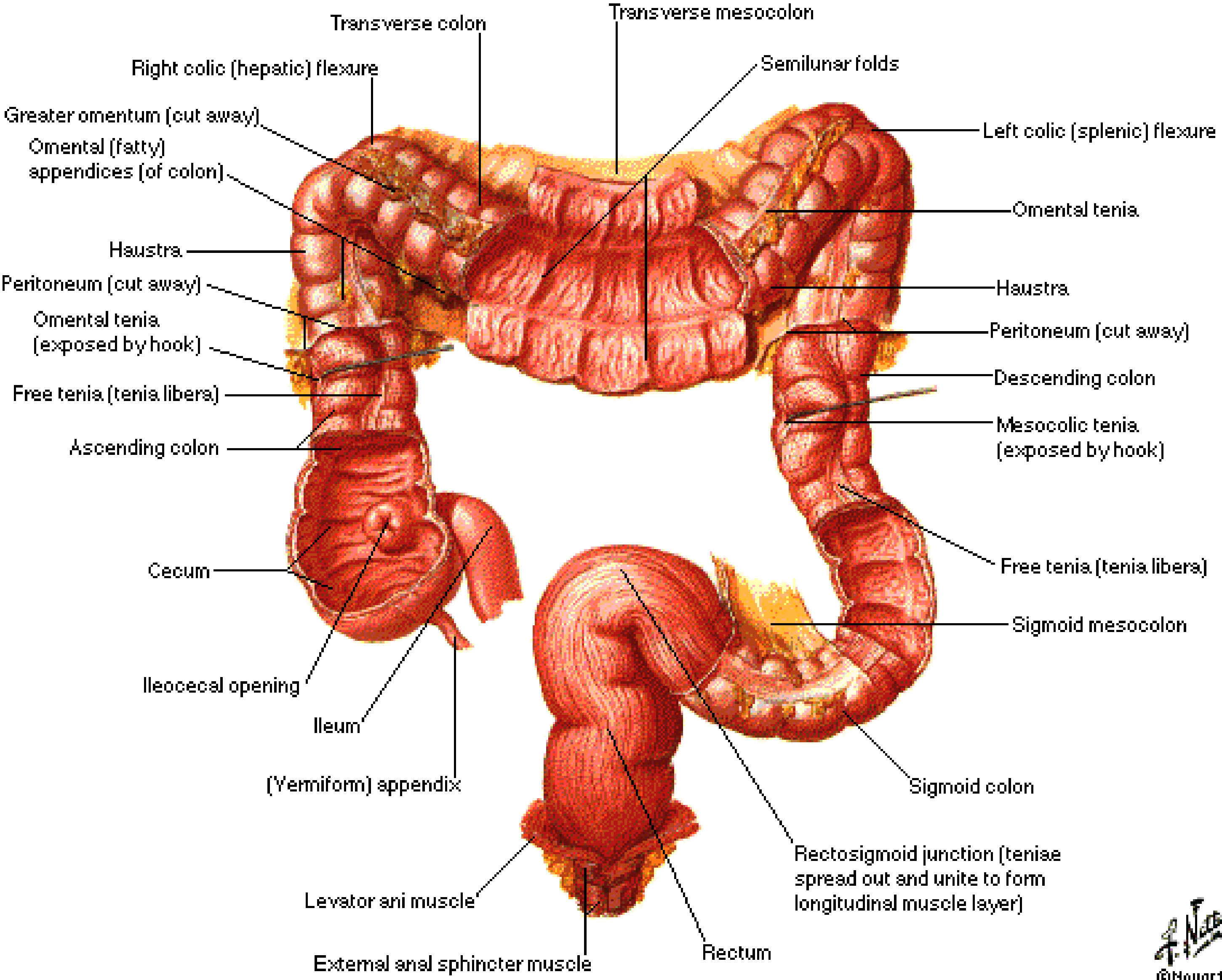
Fixed Retrocecal



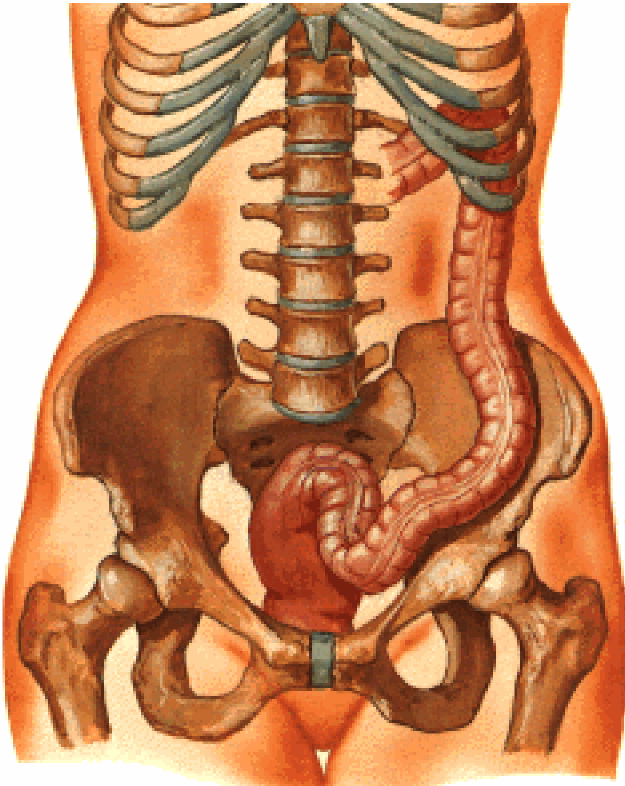
Cross Section



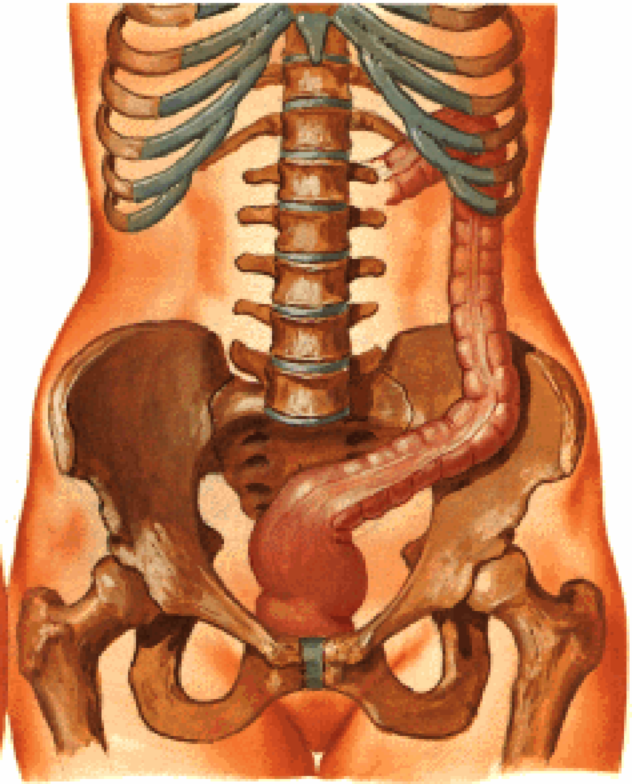
Mucosa and Musculature of Large Intestine



Variations in Position

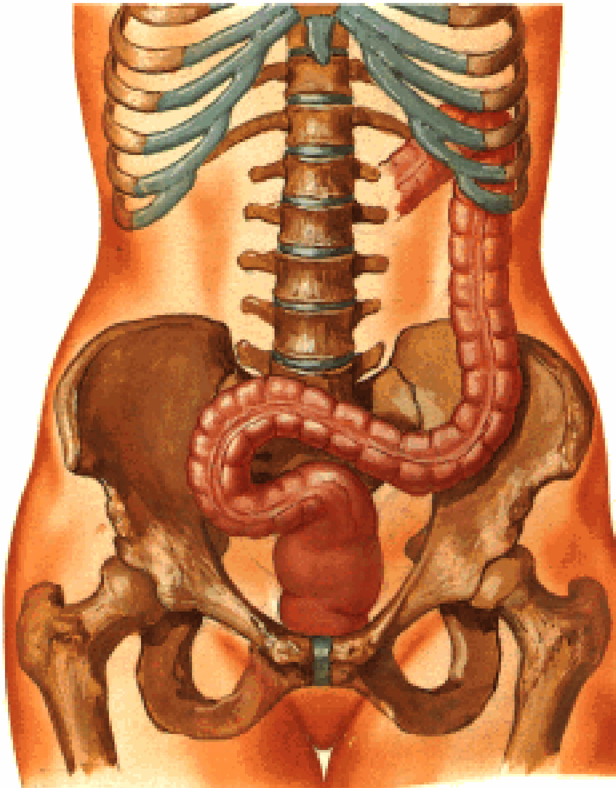


Typical

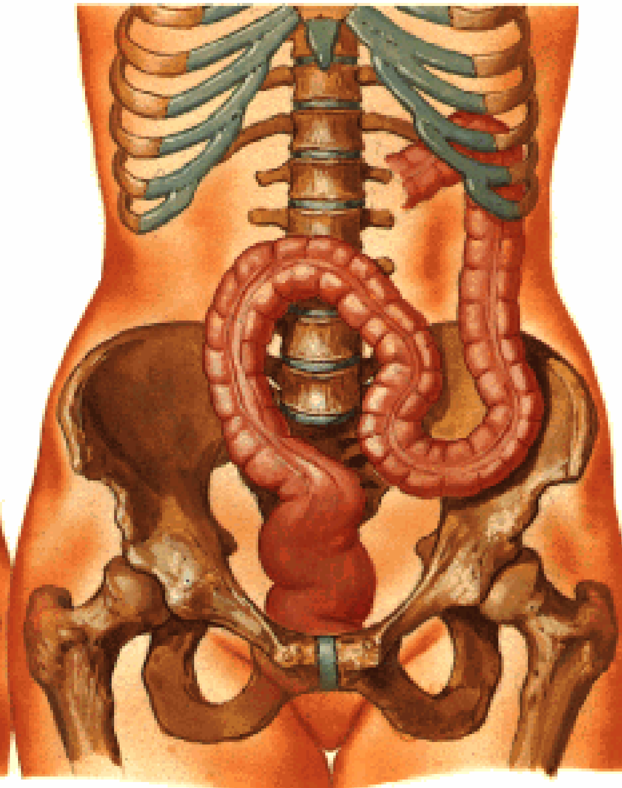


Short, straight, obliquely into pelvis

Variations in Position

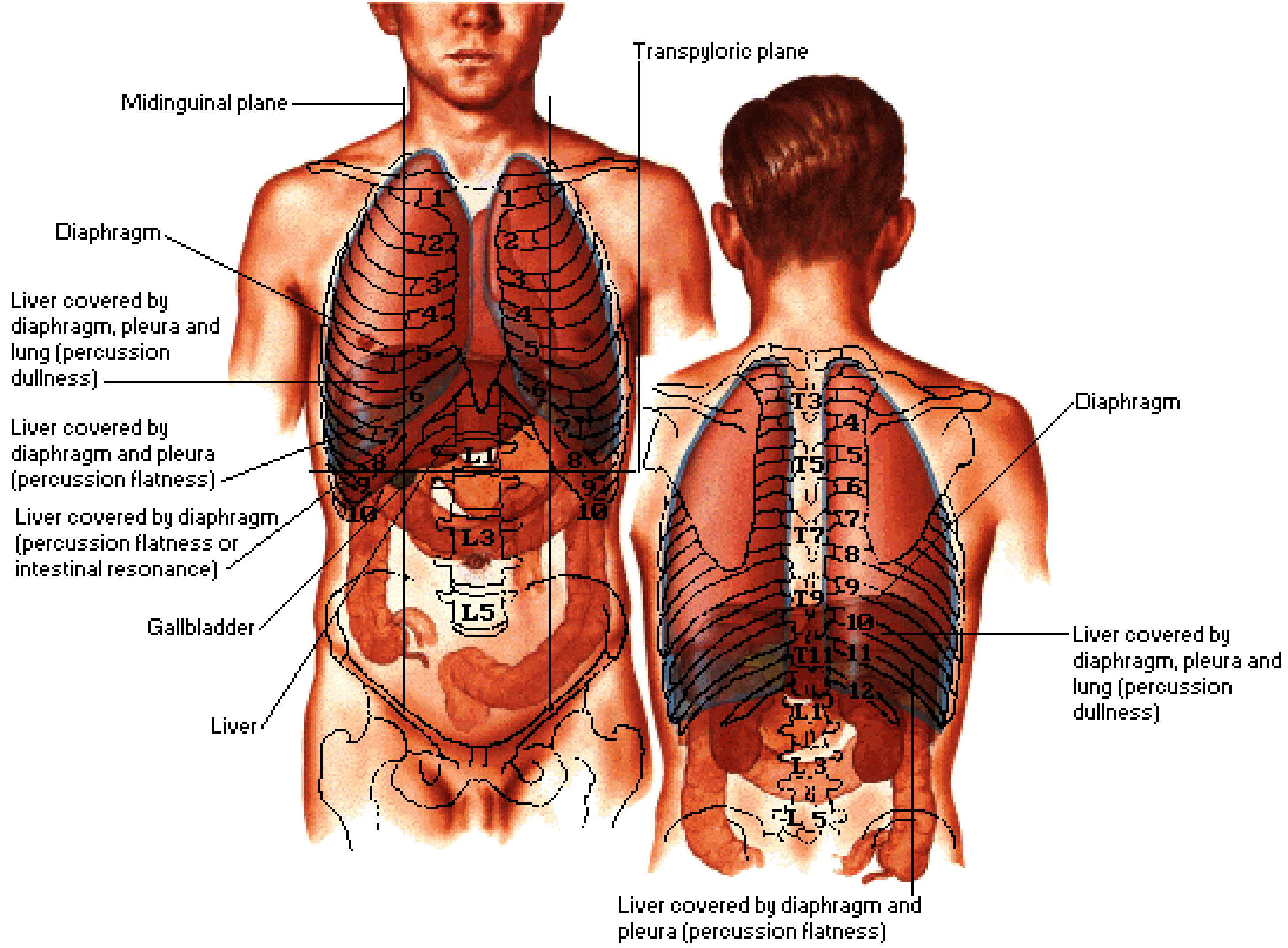


Looping to right side

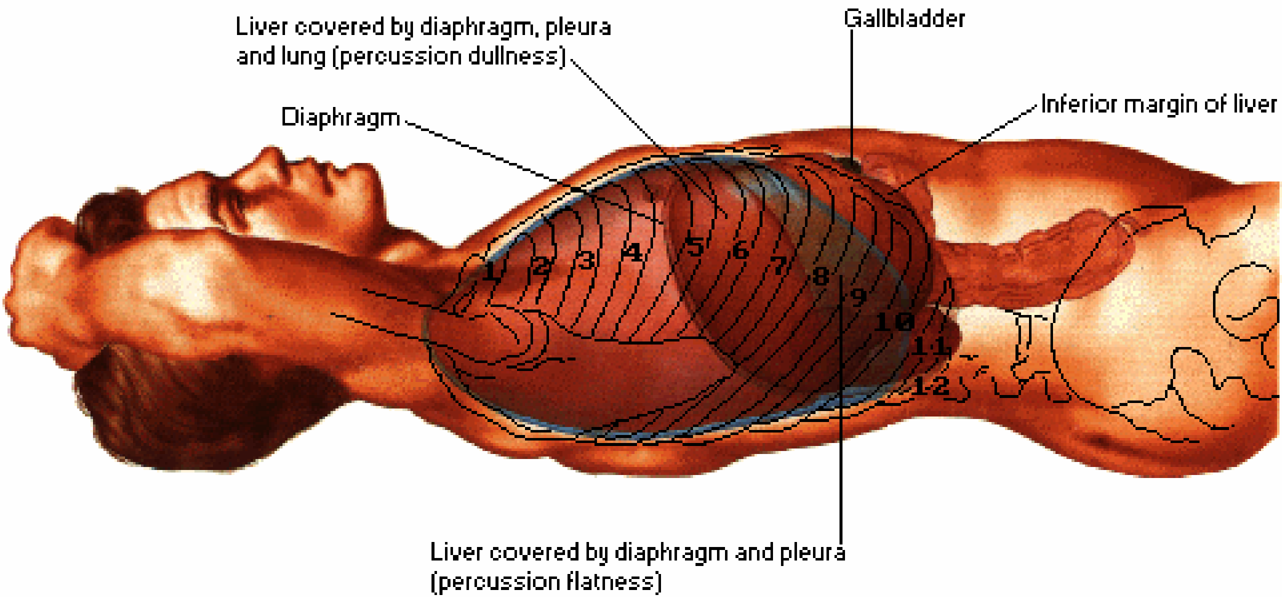


Ascending high into abdomen

Anterior and Posterior Views

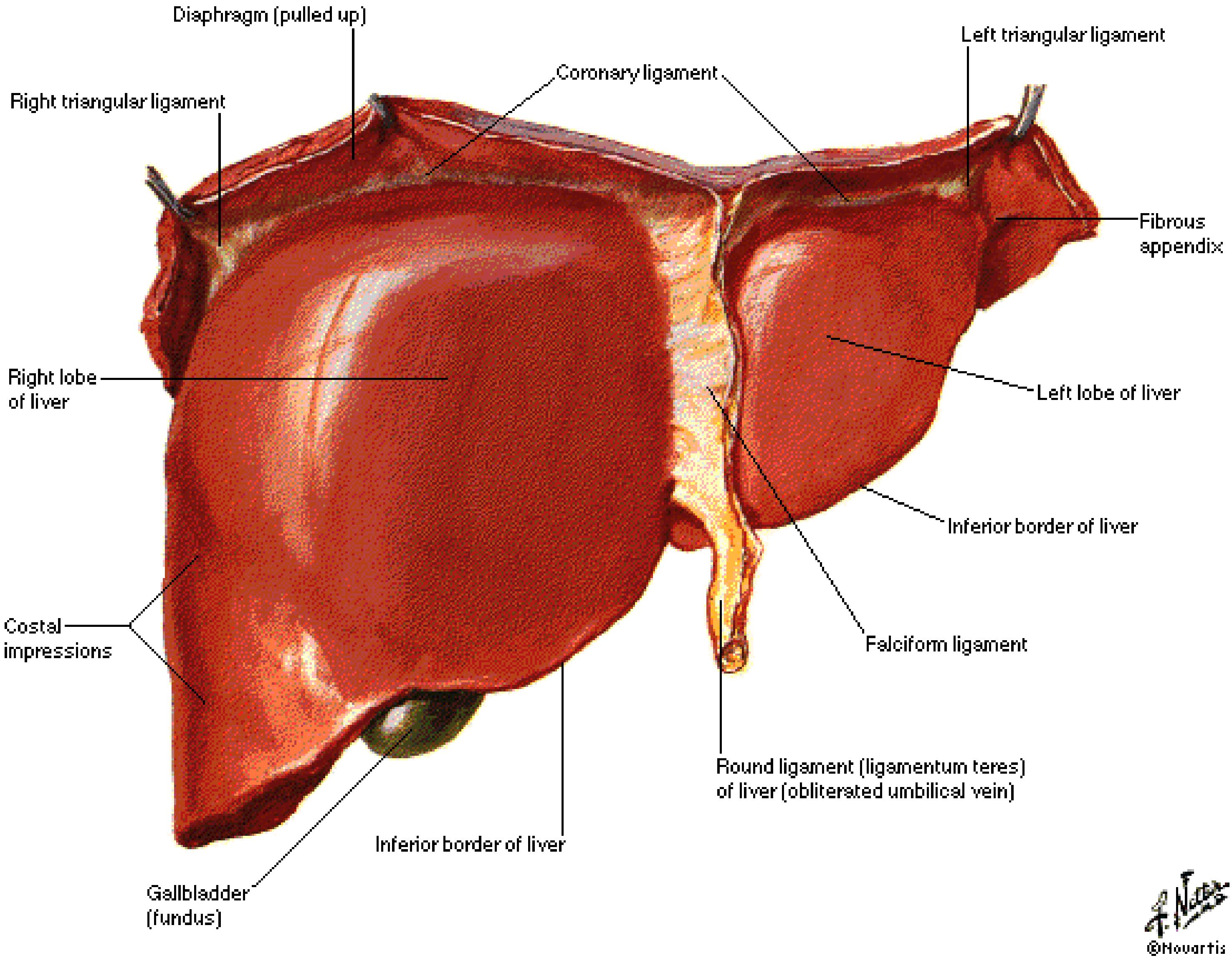


Lateral View



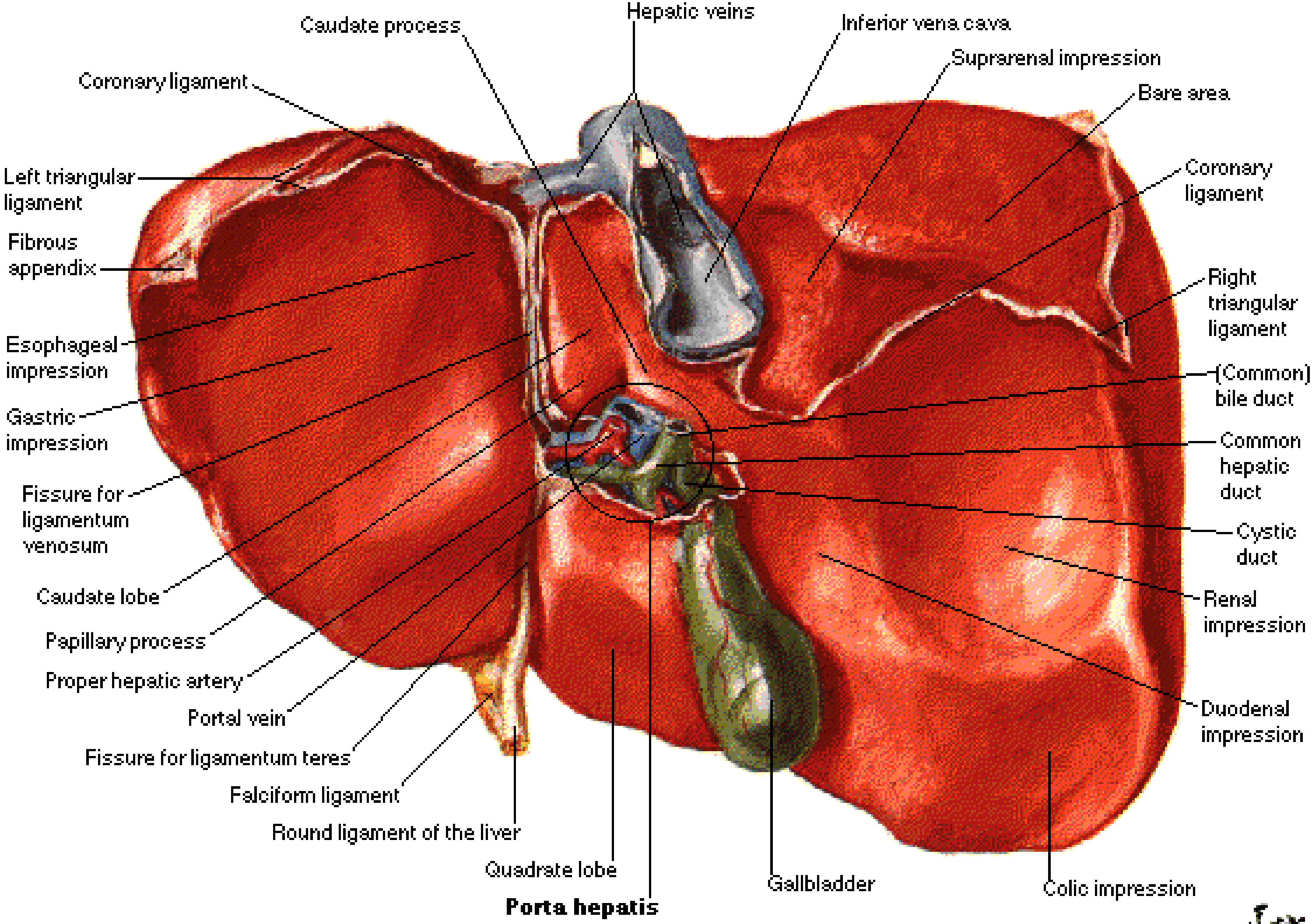
Surfaces and Bed of Liver

Anterior View

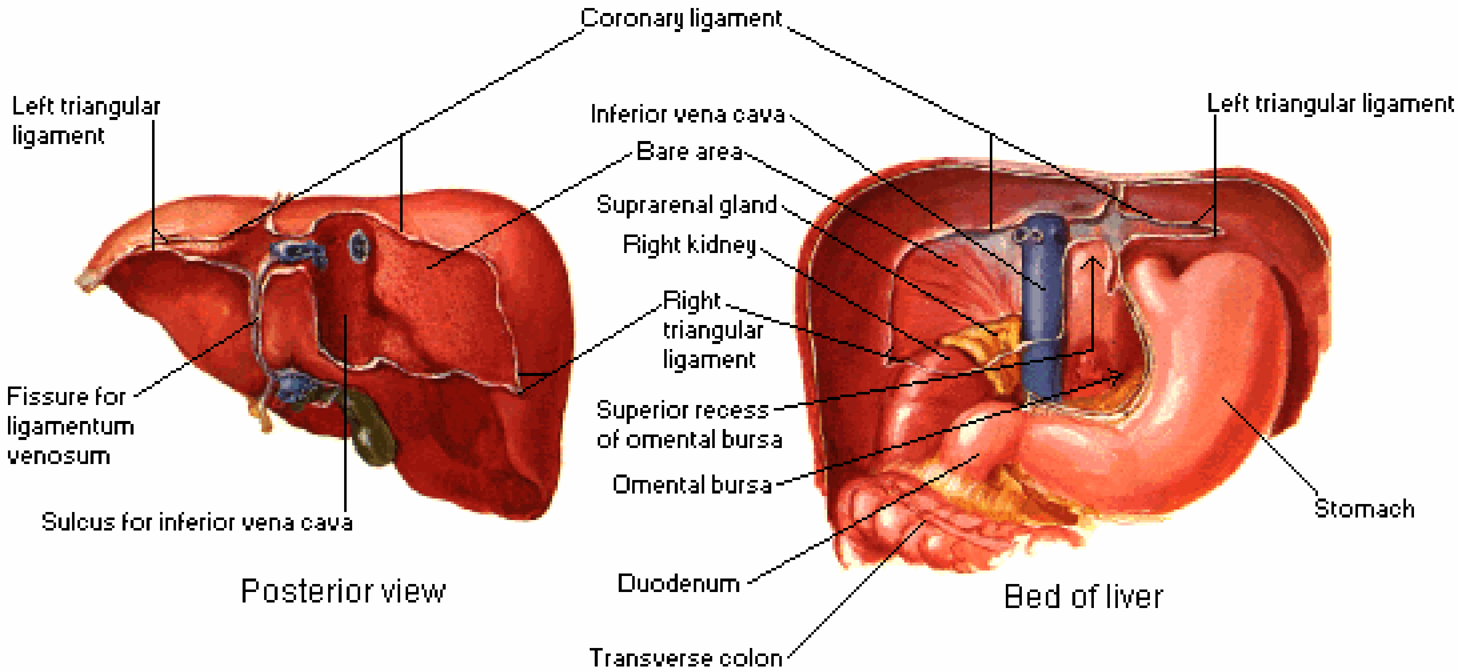


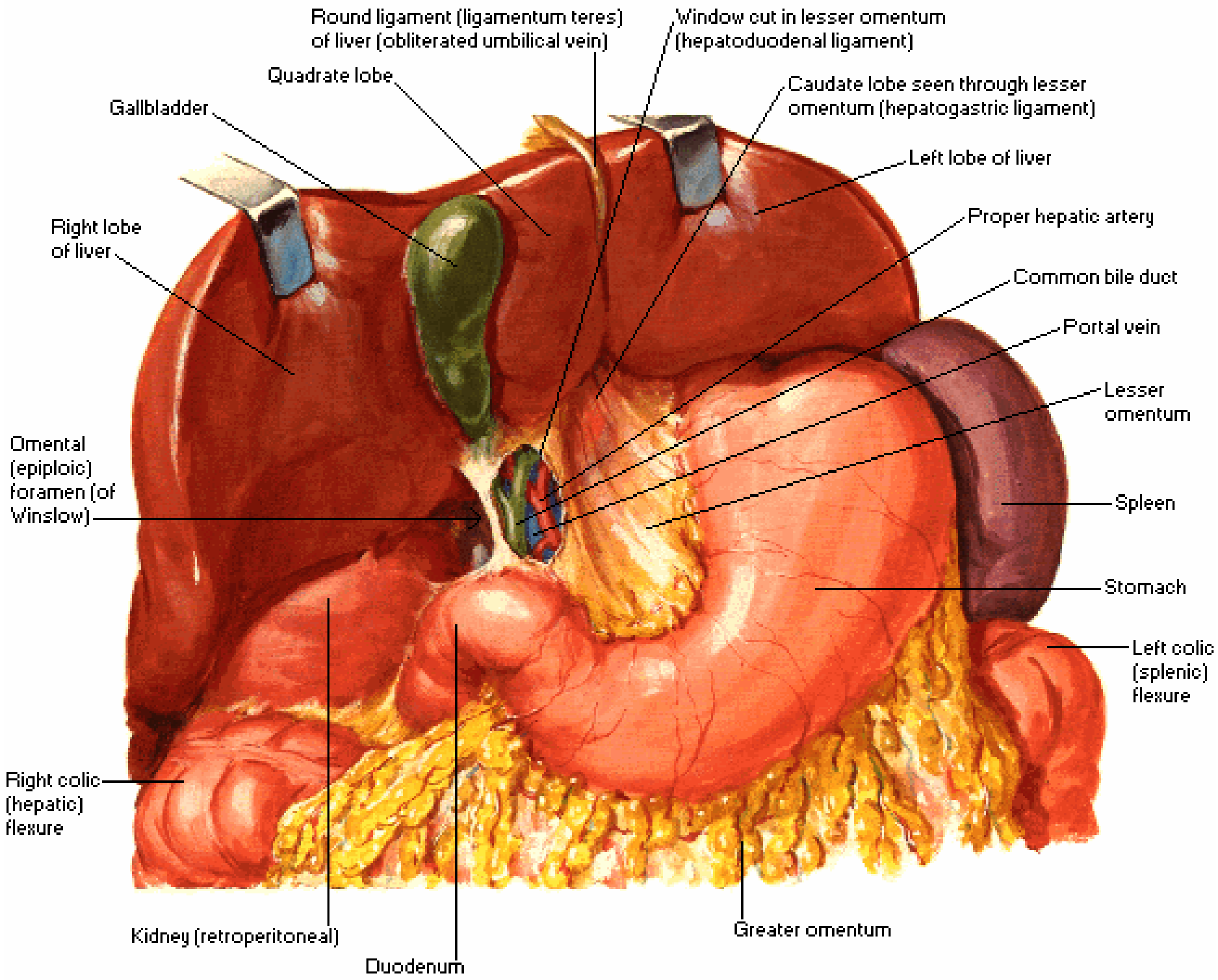
Surfaces and Bed of Liver

Visceral Surface

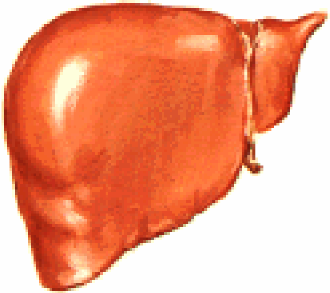


Posterior View and Bed of Liver

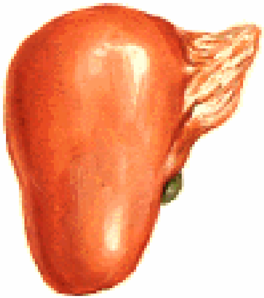



Round ligament (ligamentum teres) of liver (obliterated umbilical vein)
Window cut in lesser omentum (hepatoduodenal ligament)
Quadrate lobe
Caudate lobe seen through lesser omentum (hepatogastric ligament)
Gallbladder
Left lobe of liver
Proper hepatic artery
Right lobe of liver
Common bile duct
Portal vein
Lesser omentum
Omental (epiploic) foramen (of Winslow)
Spleen
Stomach
Left colic (splenic) flexure
Right colic (hepatic) flexure
Kidney (retroperitoneal)
Greater omentum
Duodenum

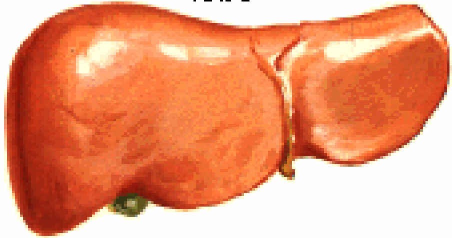
Very small left lobe, deep costal impressions

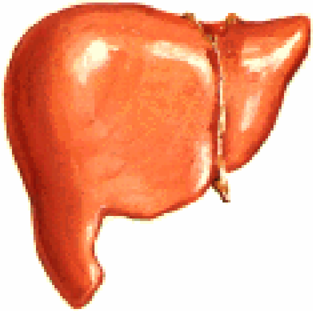


Complete atrophy of left lobe (left portal vein compression)

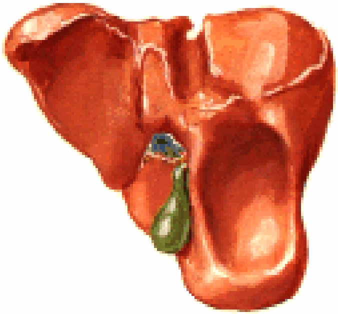


Transverse, "saddlelike" liver, relatively large left lobe

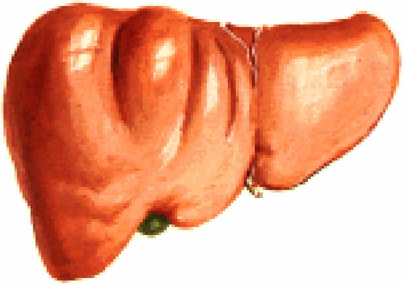




"Tonguelike" process of right lobe

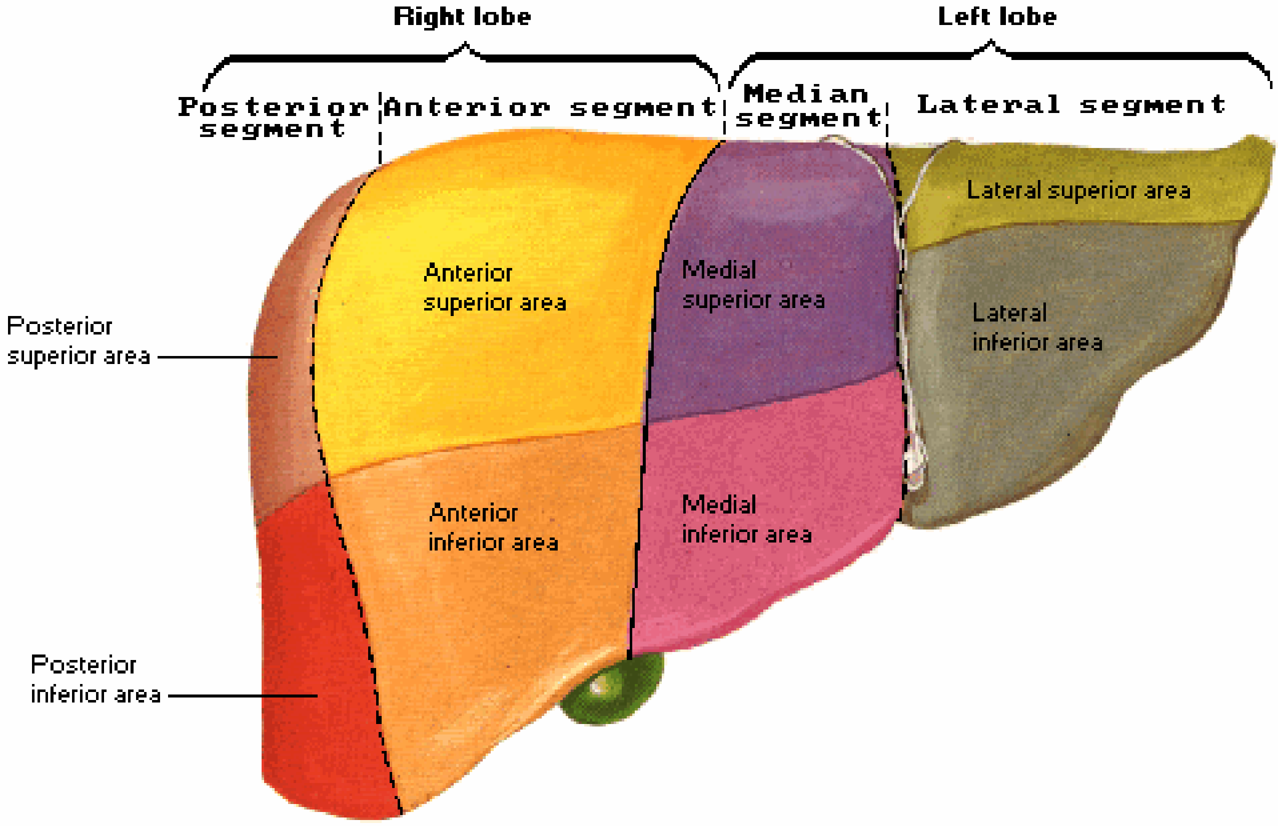


Very deep renal impression and "corset constriction"



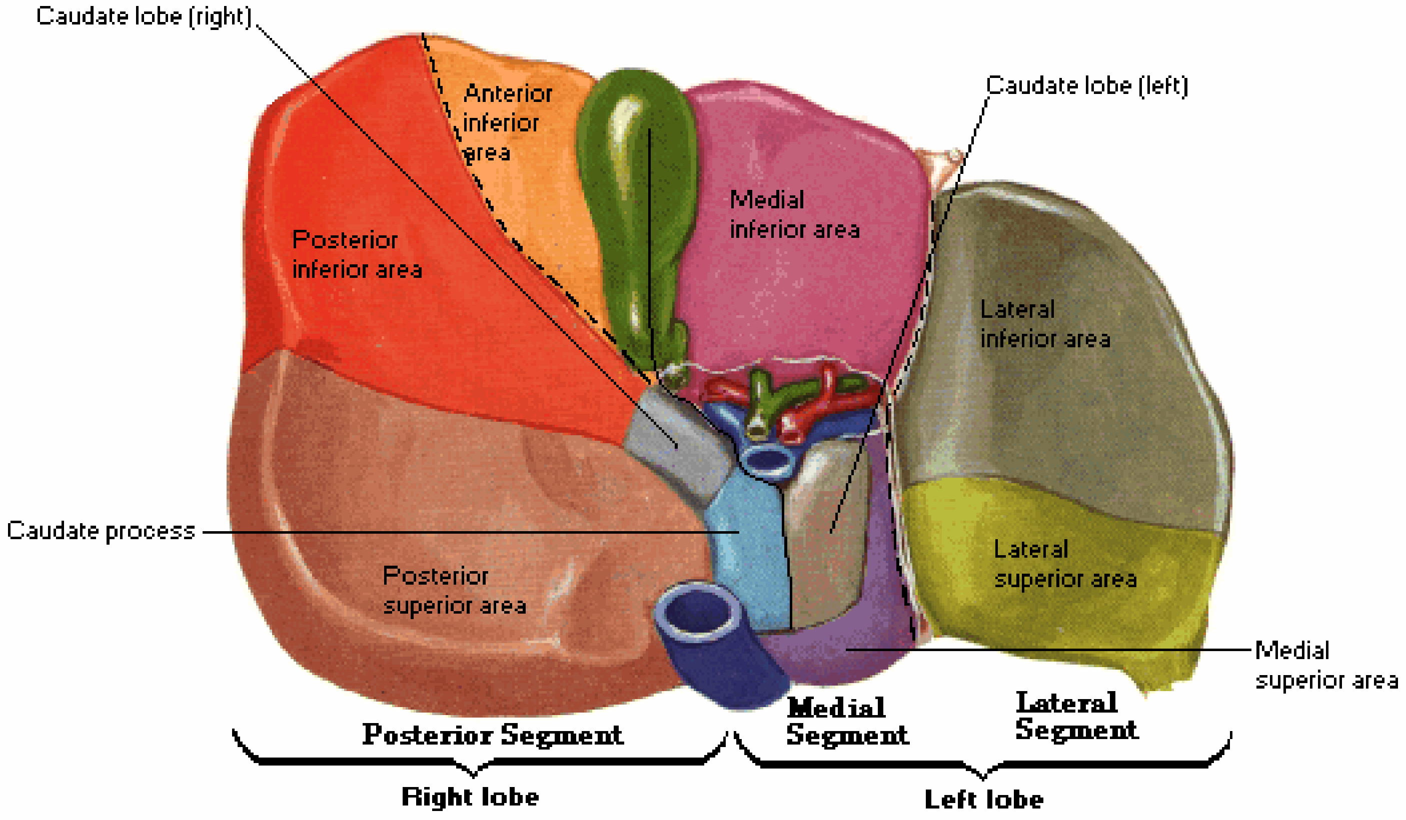
Diaphragmatic grooves

Parietal Surface

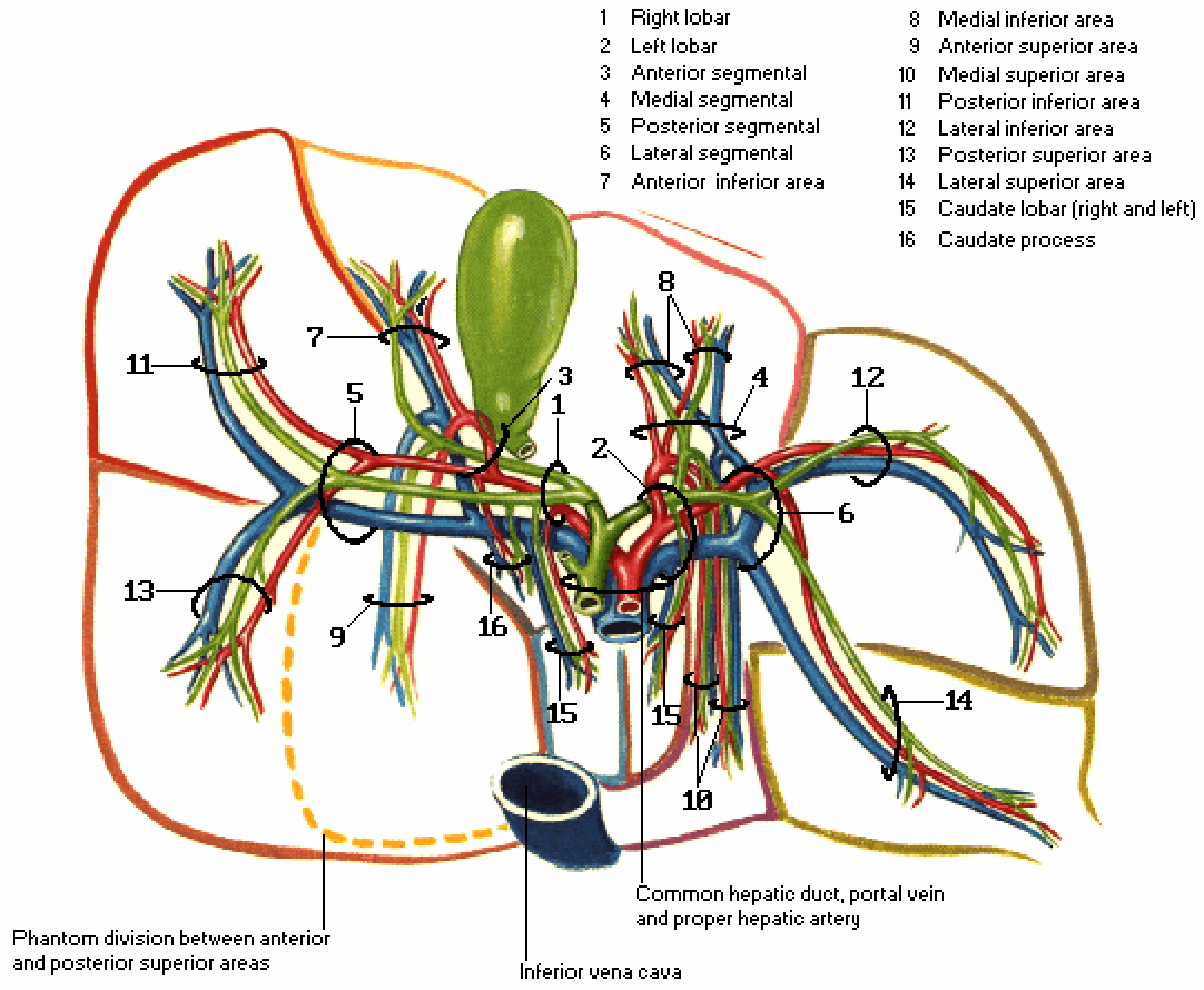


Division into segments is based upon ramifications of bile ducts and hepatic vessels. It does not entirely correspond with division into lobes

Visceral Surface

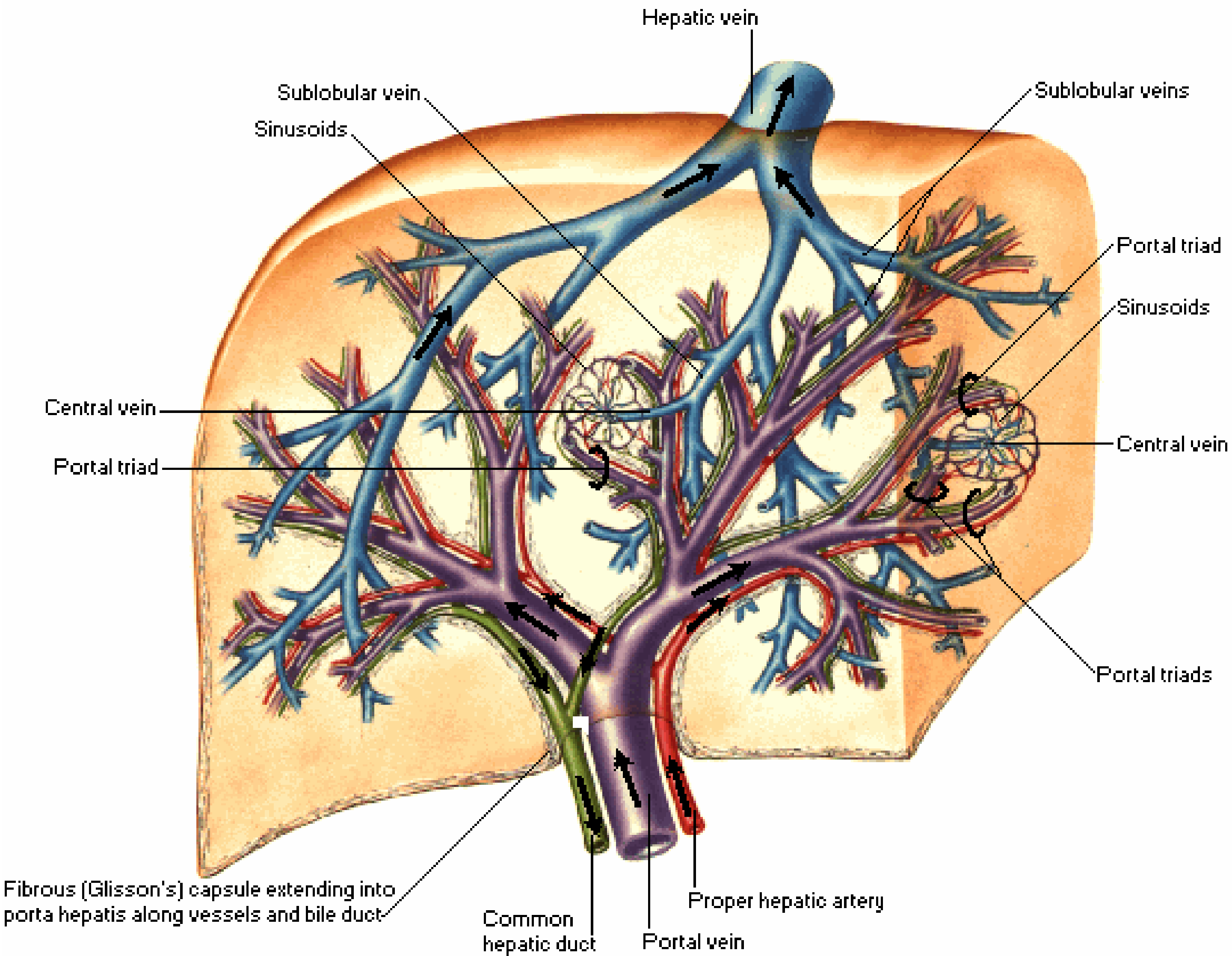


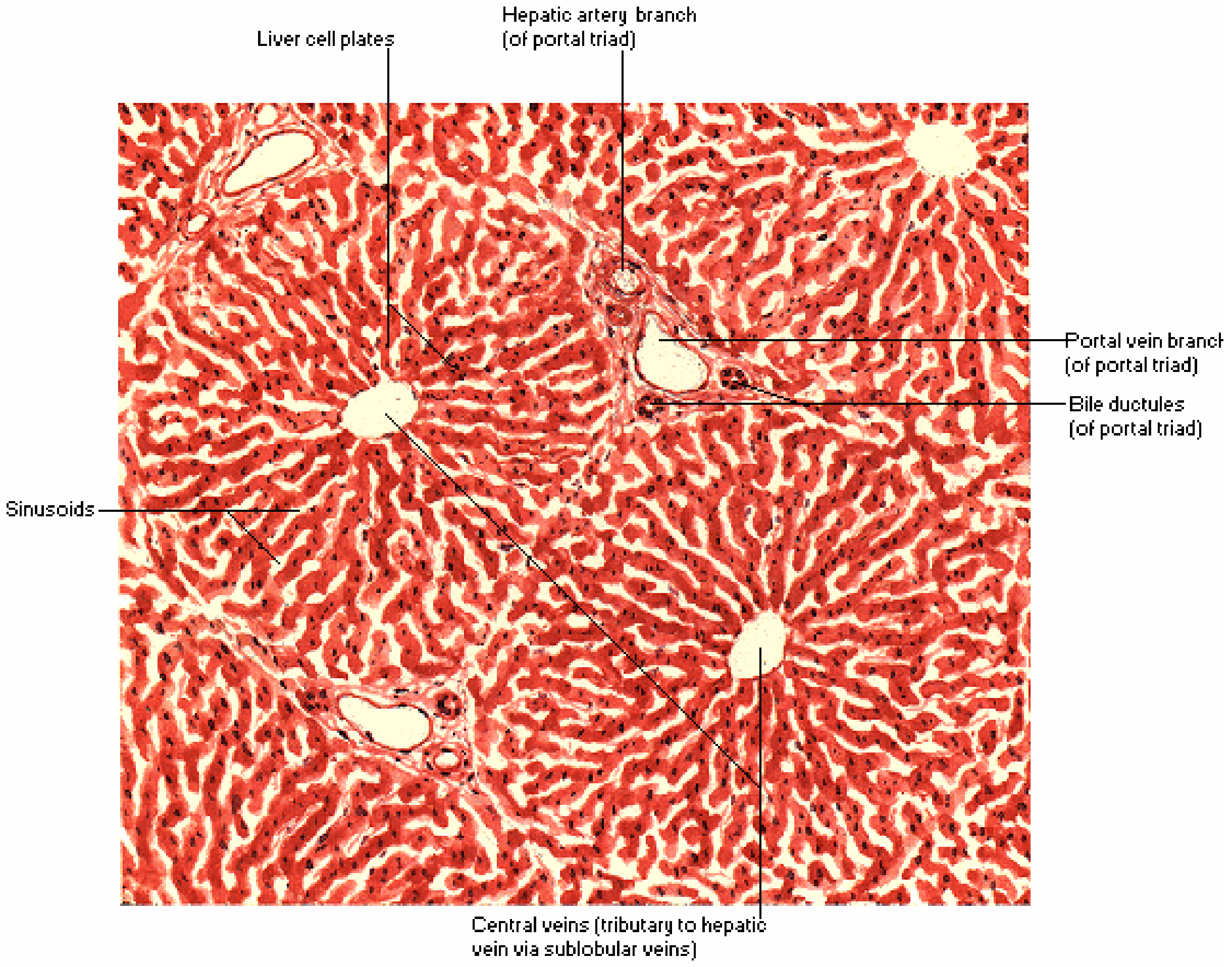
Division into segments is based upon ramifications of bile ducts and hepatic vessels. It does not entirely correspond with division into lobes



1 Right lobar
2 Left lobar
3 Anterior segmental
4 Medial segmental
5 Posterior segmental
6 Lateral segmental
7 Anterior inferior area
8 Medial inferior area
9 Anterior superior area
10 Medial superior area
11 Posterior inferior area
12 Lateral inferior area
13 Posterior superior area
14 Lateral superior area
15 Caudate lobar (right and left)
16 Caudate process
Common hepatic duct, portal vein and proper hepatic artery
Phantom division between anterior and posterior superior areas
Inferior vena cava

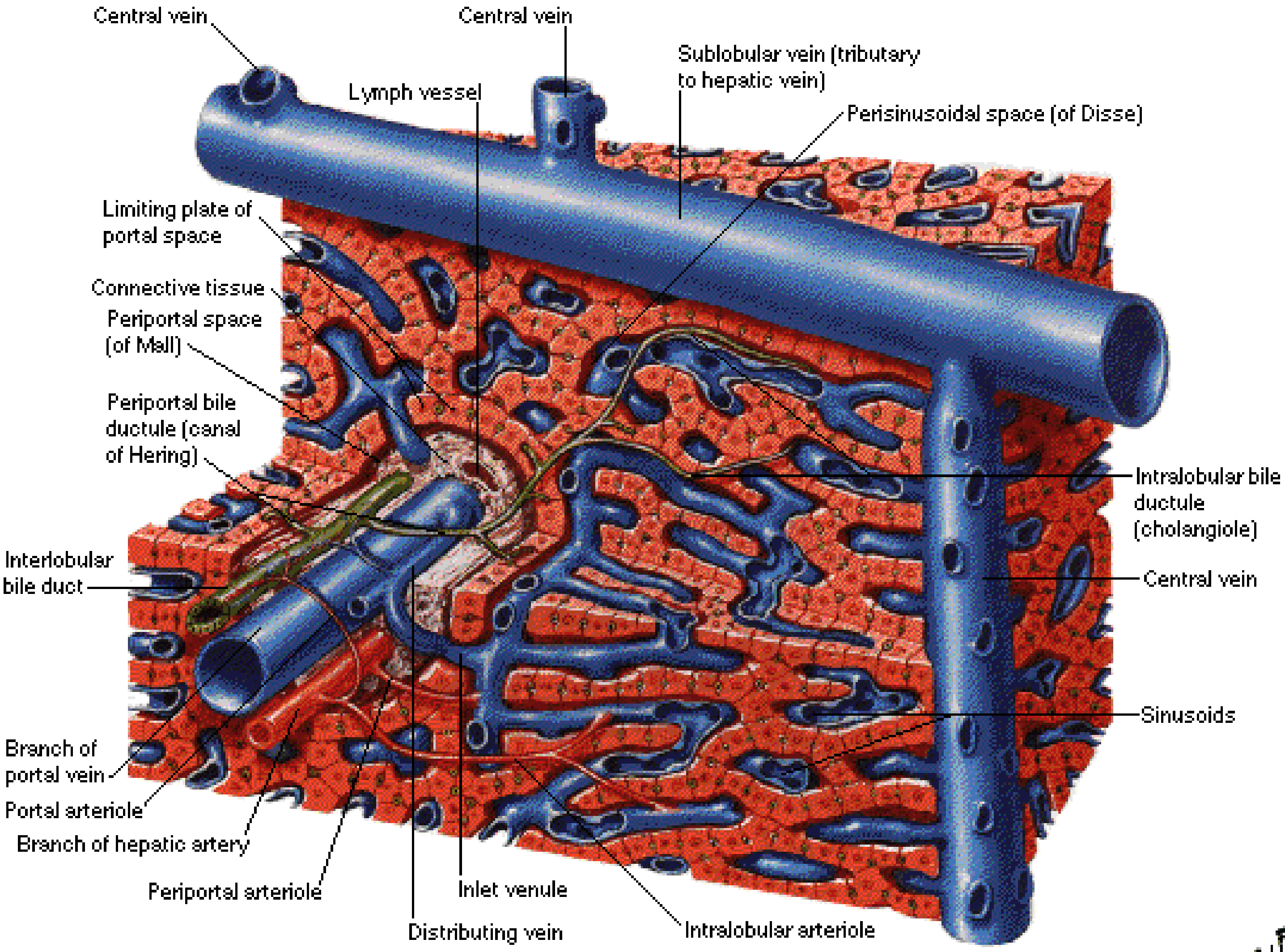
Schema


Hepatic vein
Sublobular vein
Sinusoids
Sublobular veins
Portal triad
Sinusoids
Central vein
Central vein
Portal triad
Portal triads
Fibrous (Glisson's) capsule extending into porta hepatis along vessels and bile duct
Common hepatic duct
Portal vein
Proper hepatic artery

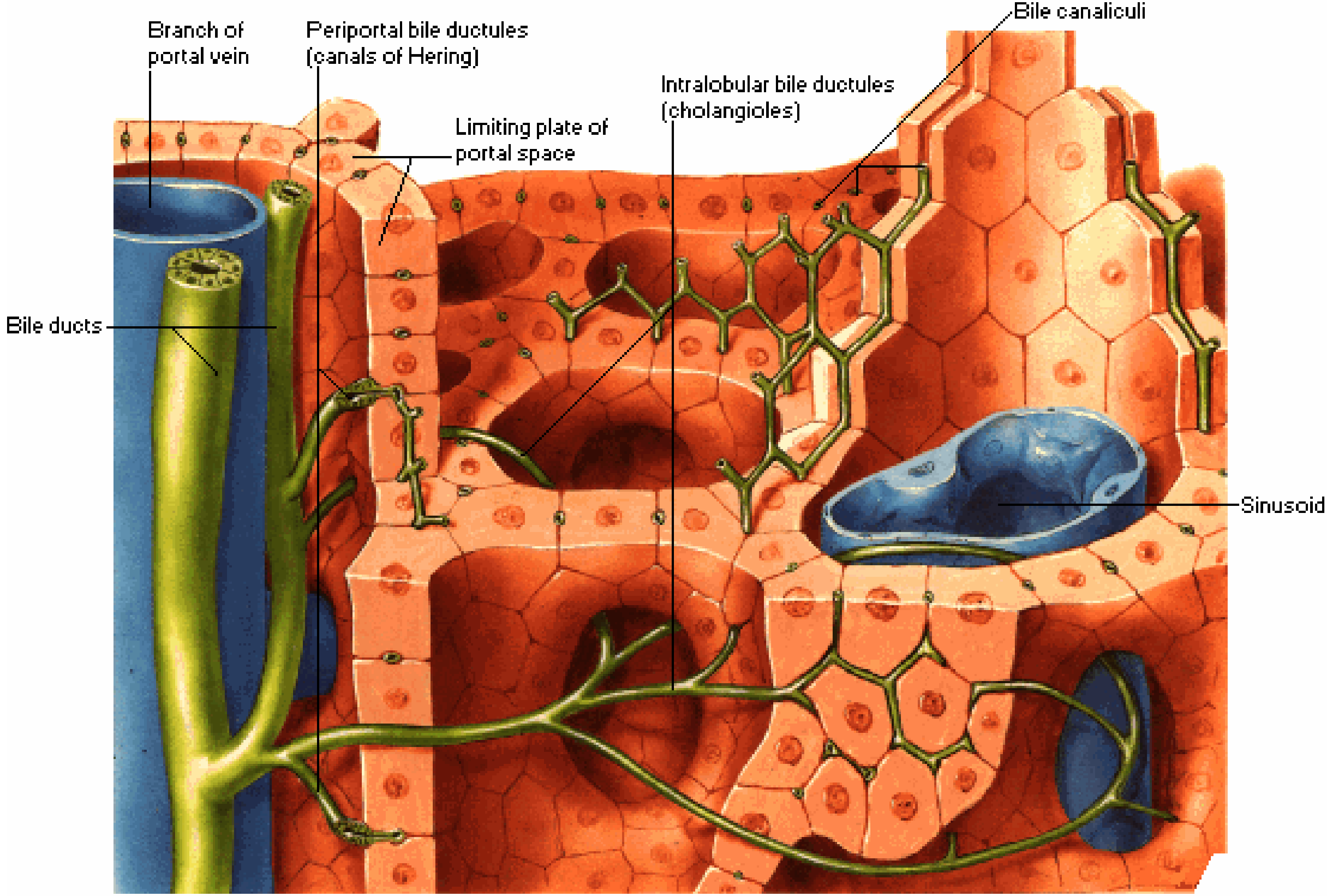

Hepatic artery branch
(of portal triad)
Liver cell plates
Portal vein branch
(of portal triad)
Bile ductules
(of portal triad)
Sinusoids
Central veins (tributary to hepatic
vein via sublobular veins)

Liver Structure

Schema

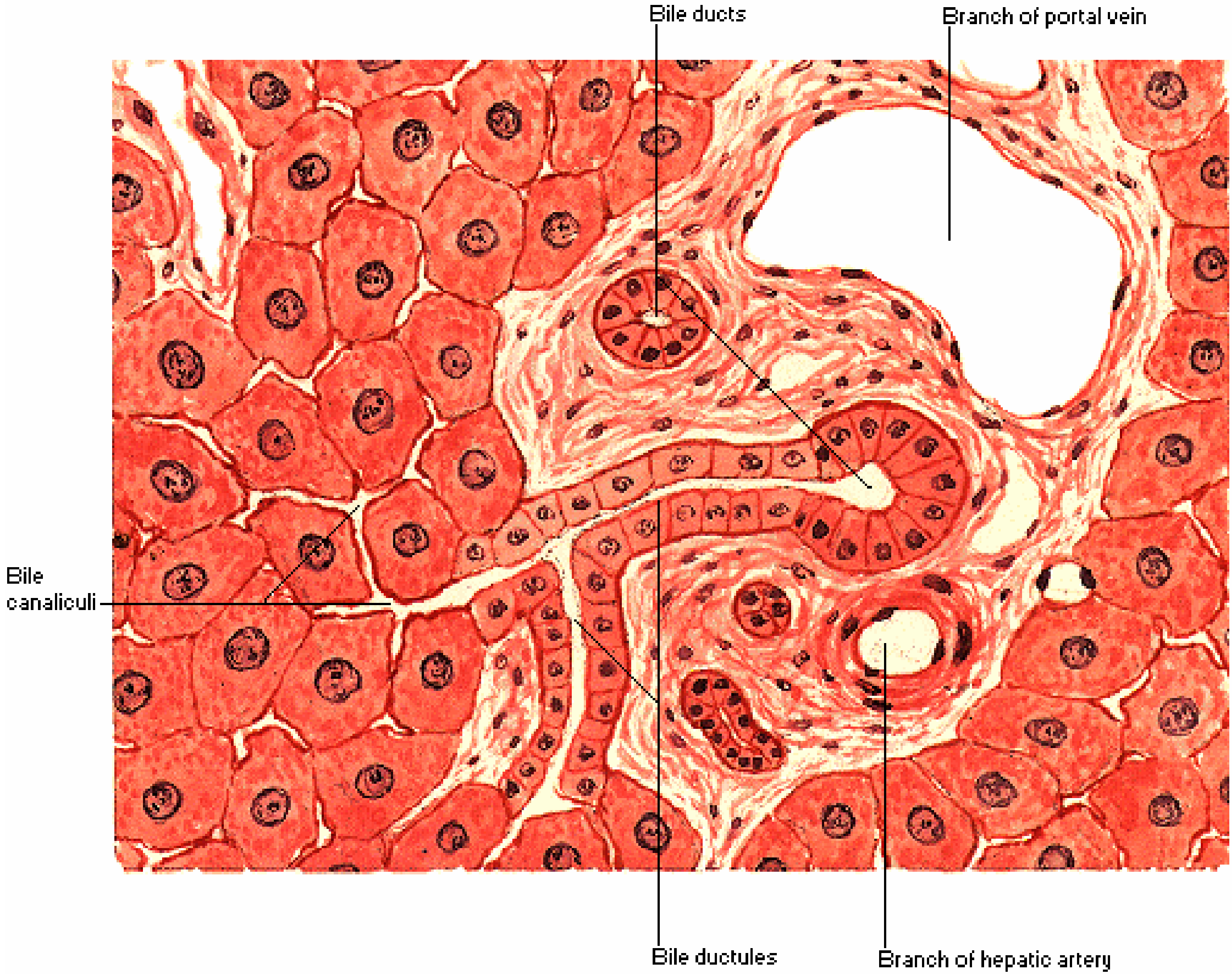


Schema

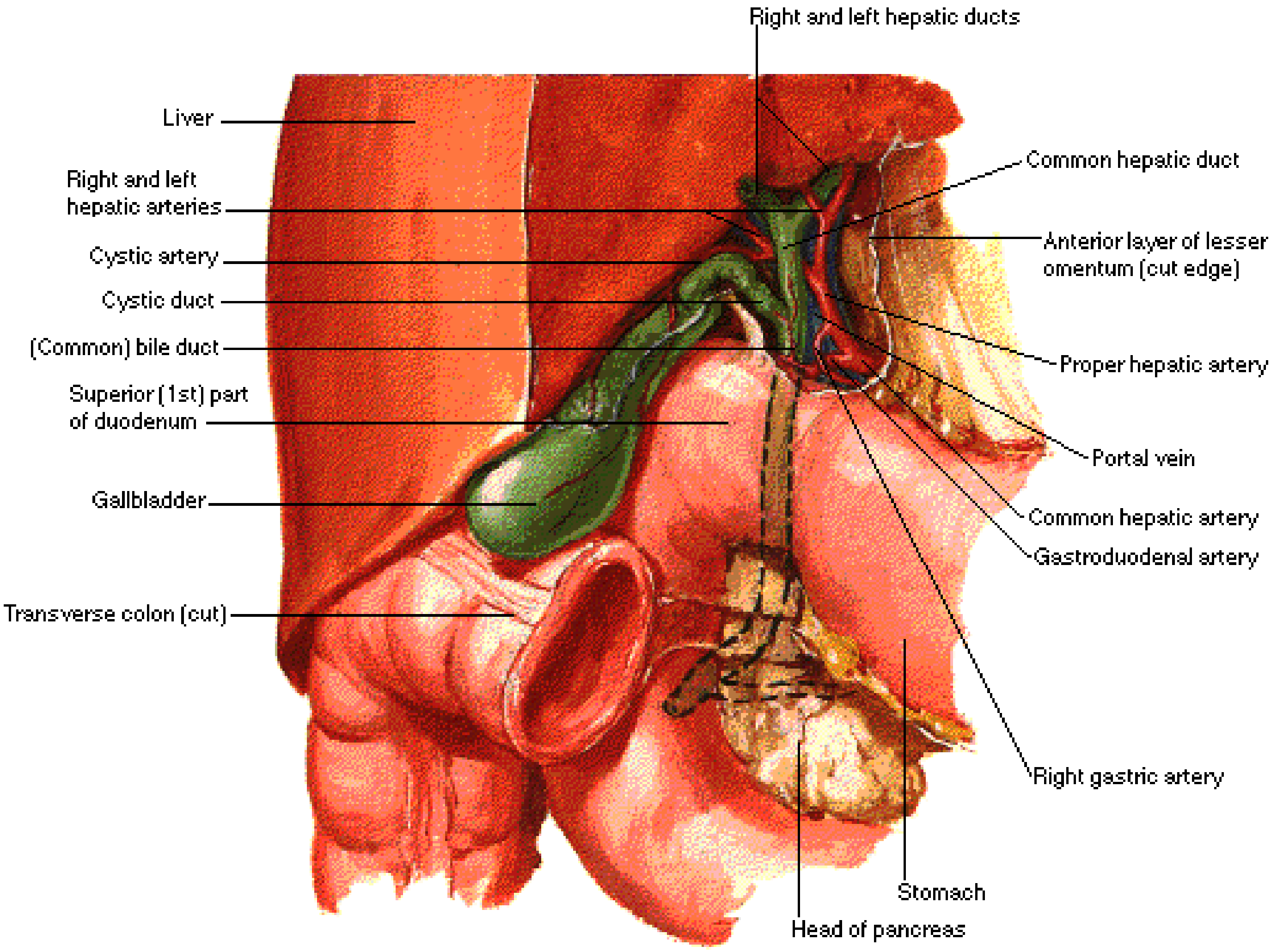


Note: in this illustration, bile canaliculi appear as structures with walls of their own. However, as shown in image 275B, boundaries of canaliculi are actually a specialization of surface membranes of adjoining liver parenchymal cells

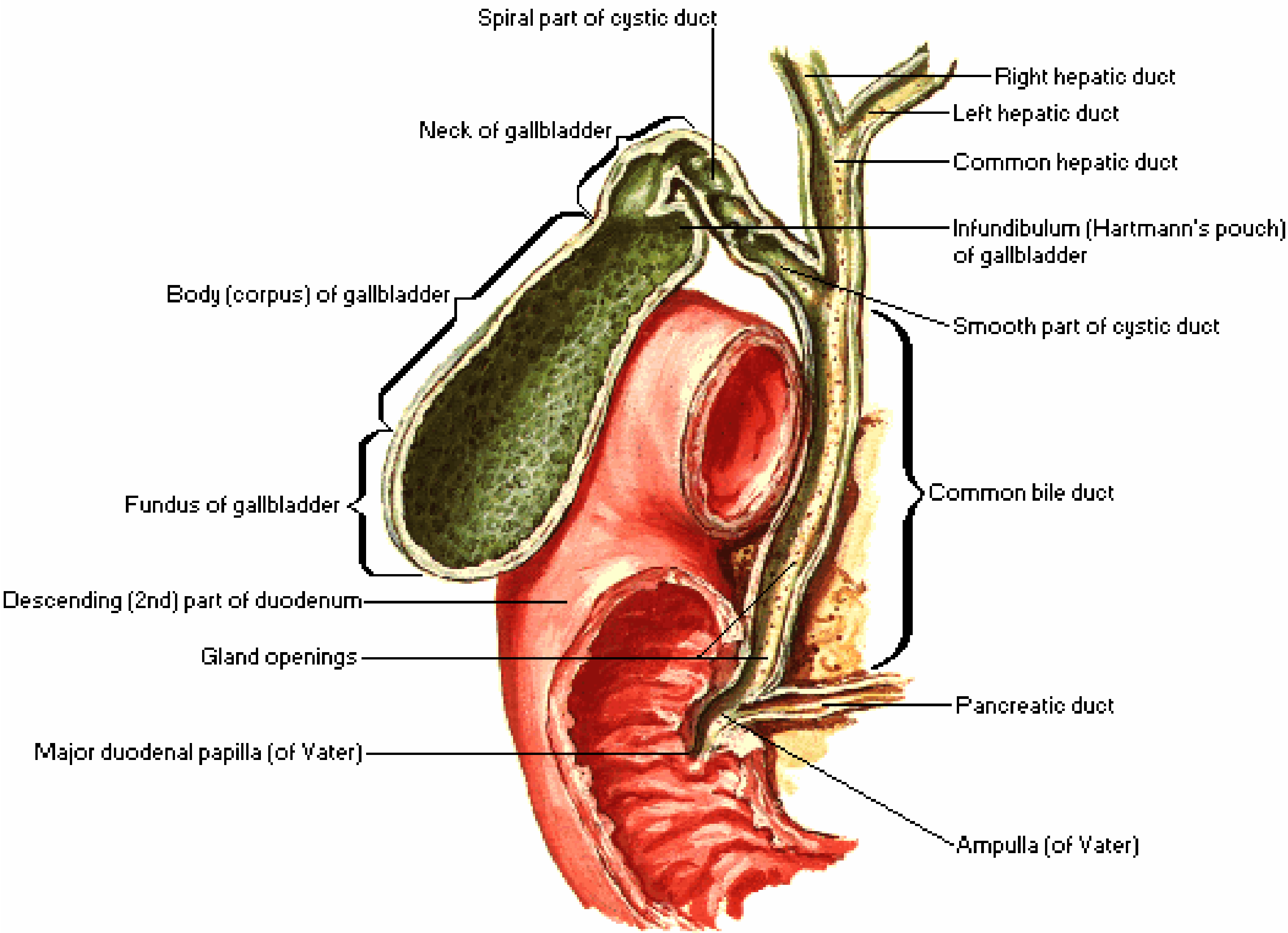
Histology


Bile ducts
Branch of portal vein
Bile
canaliculi
Bile ductules
Branch of hepatic artery

Gallbladder and Extrahepatic Bile Ducts



Sectioned



Spiral part of cystic duct
Right hepatic duct
Left hepatic duct
Neck of gallbladder
Common hepatic duct
Infundibulum (Hartmann's pouch) of gallbladder
Body (corpus) of gallbladder
Smooth part of cystic duct
Common bile duct
Fundus of gallbladder
Descending (2nd) part of duodenum
Gland openings
Pancreatic duct
Major duodenal papilla (of Vater)
Ampulla (of Vater)

Low union with common hepatic duct

Adherent to common hepatic duct

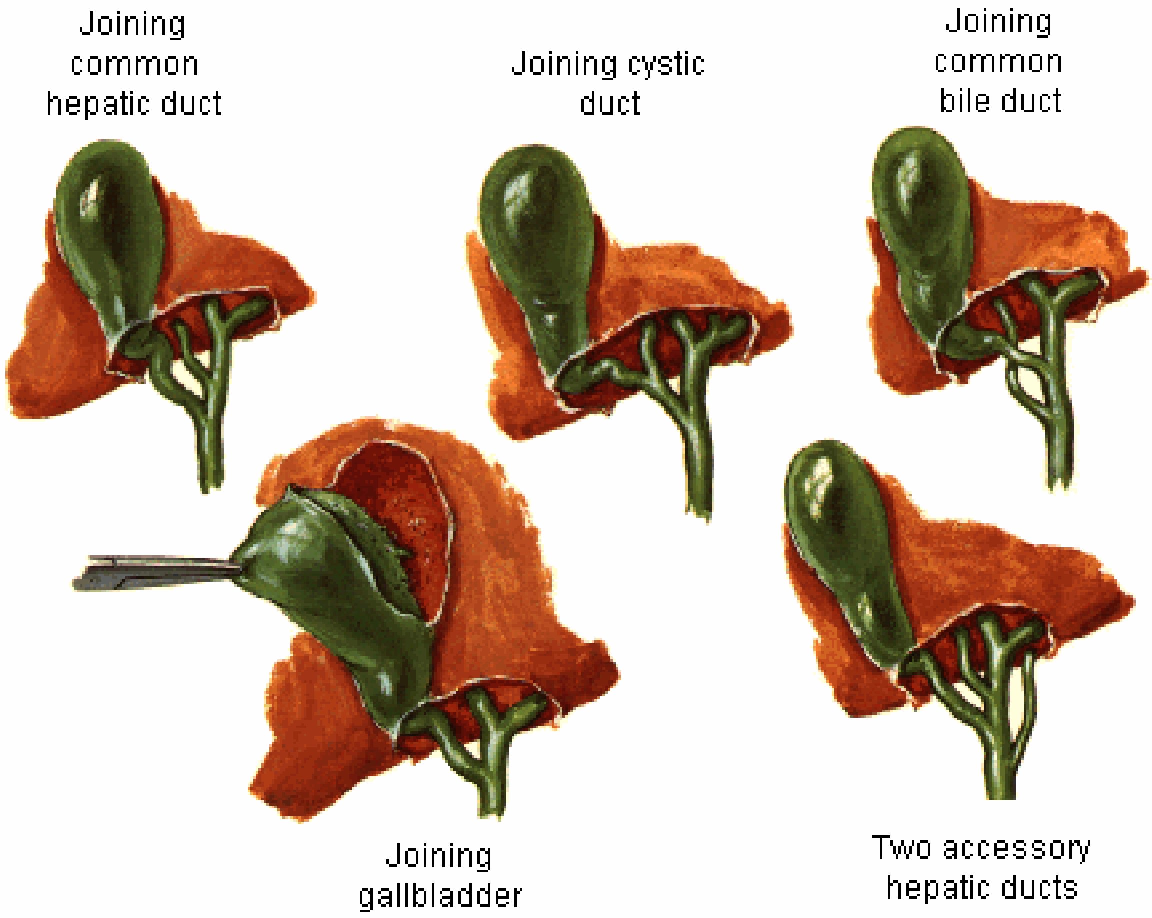
High union with common hepatic duct

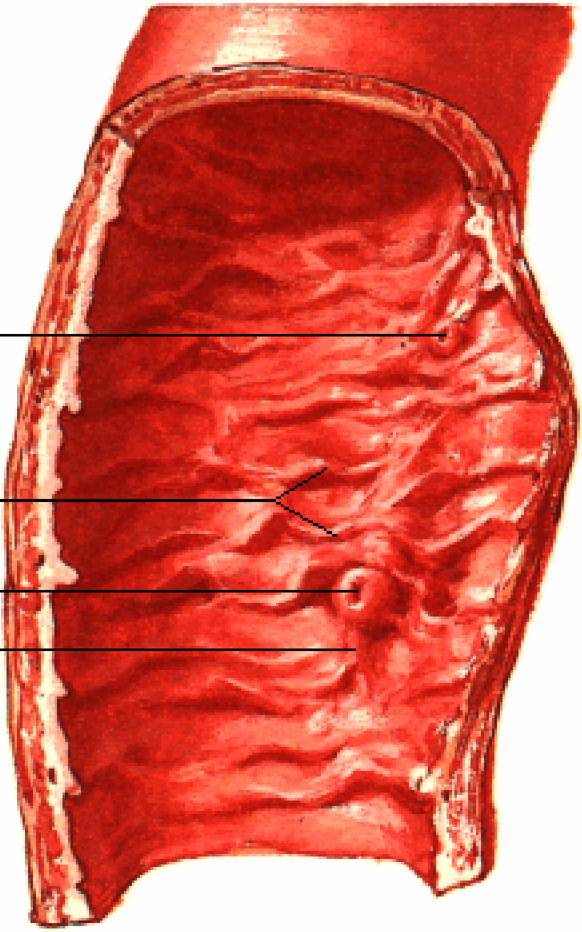


Cystic duct absent or very short

Anterior spiral joining common hepatic duct on left side

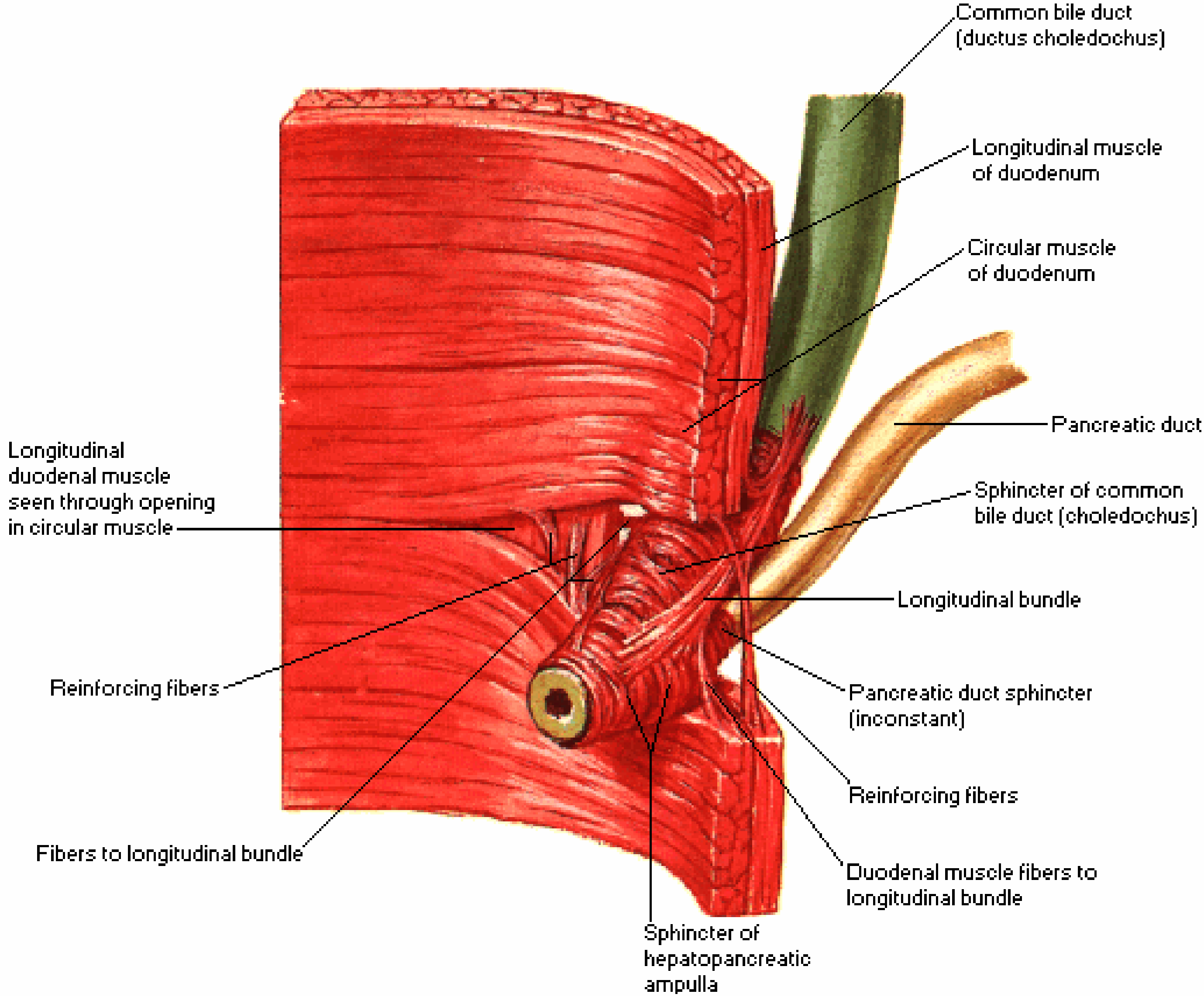
Posterior spiral joining common hepatic duct on left side


Joining common hepatic duct
Joining cystic duct
Joining common bile duct
Joining gallbladder
Two accessory hepatic ducts



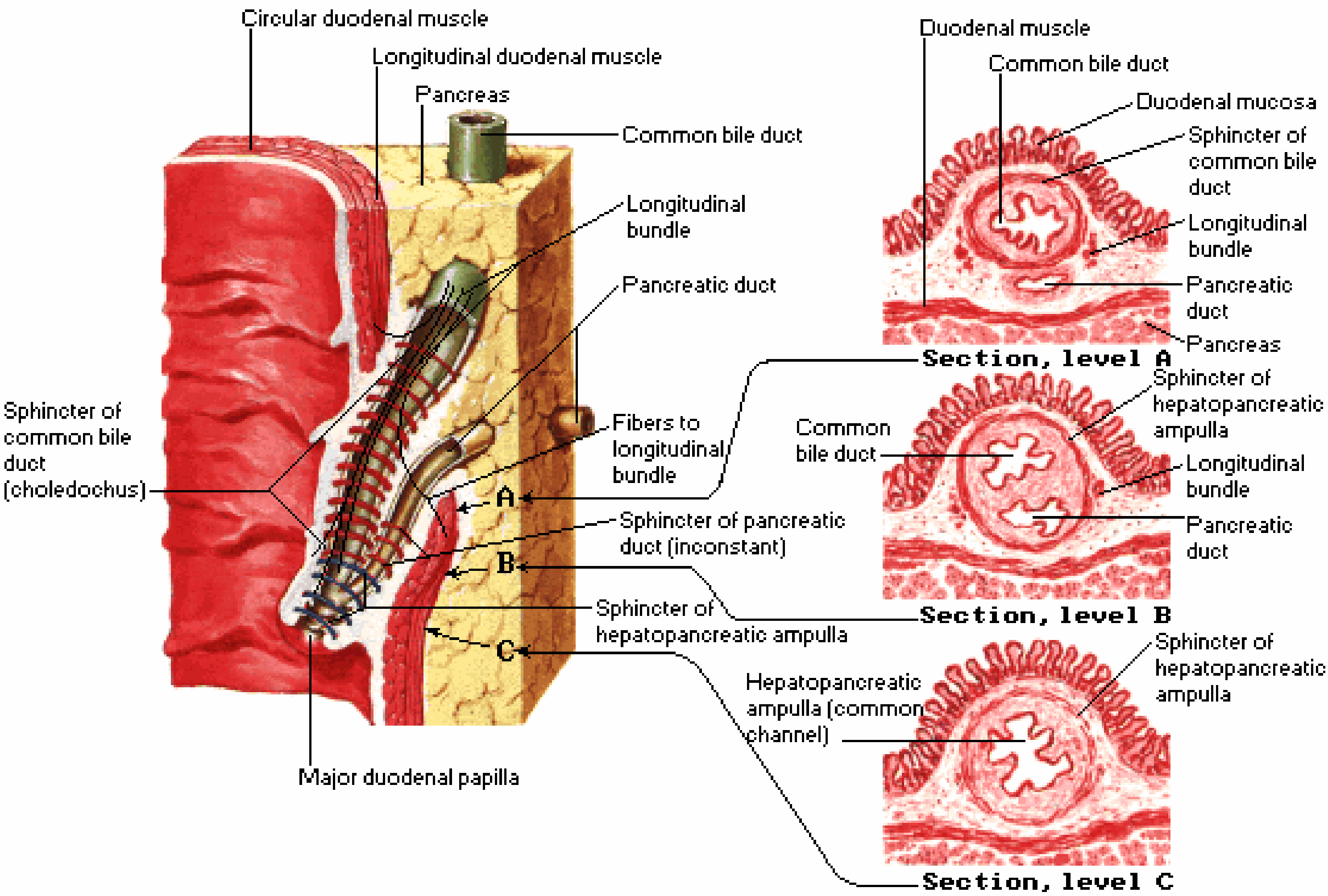
Interior of descending (2nd) part of duodenum

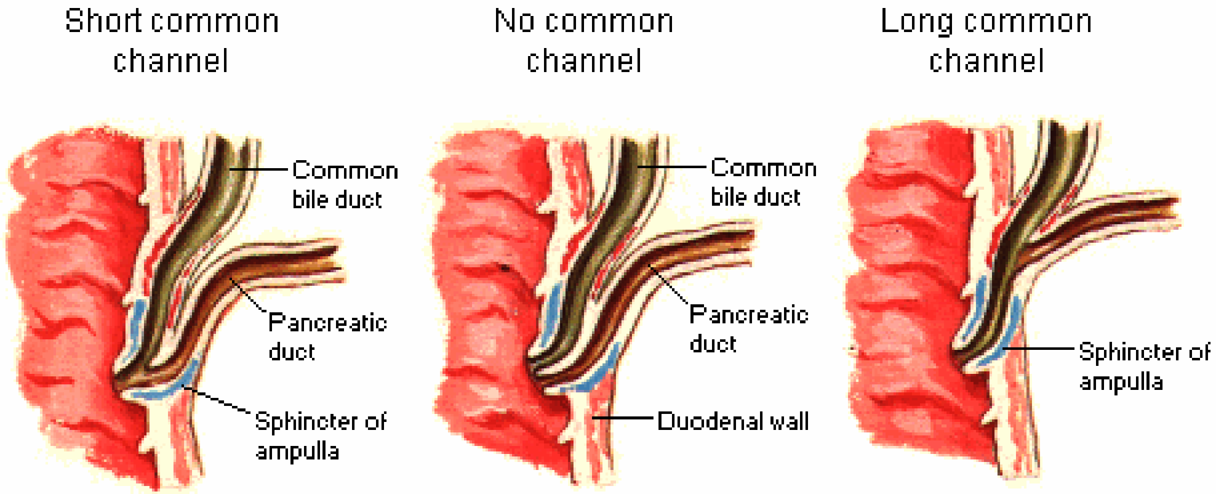
Dissection



Common bile duct
(ductus choledochus)
Longitudinal muscle
of duodenum
Circular muscle
of duodenum
Pancreatic duct
Longitudinal
duodenal muscle
seen through opening
in circular muscle
Sphincter of common
bile duct (choledochus)
Longitudinal bundle
Reinforcing fibers
Pancreatic duct sphincter
(inconstant)
Reinforcing fibers
Fibers to longitudinal bundle
Duodenal muscle fibers to
longitudinal bundle
Sphincter of
hepatopancreatic
ampulla

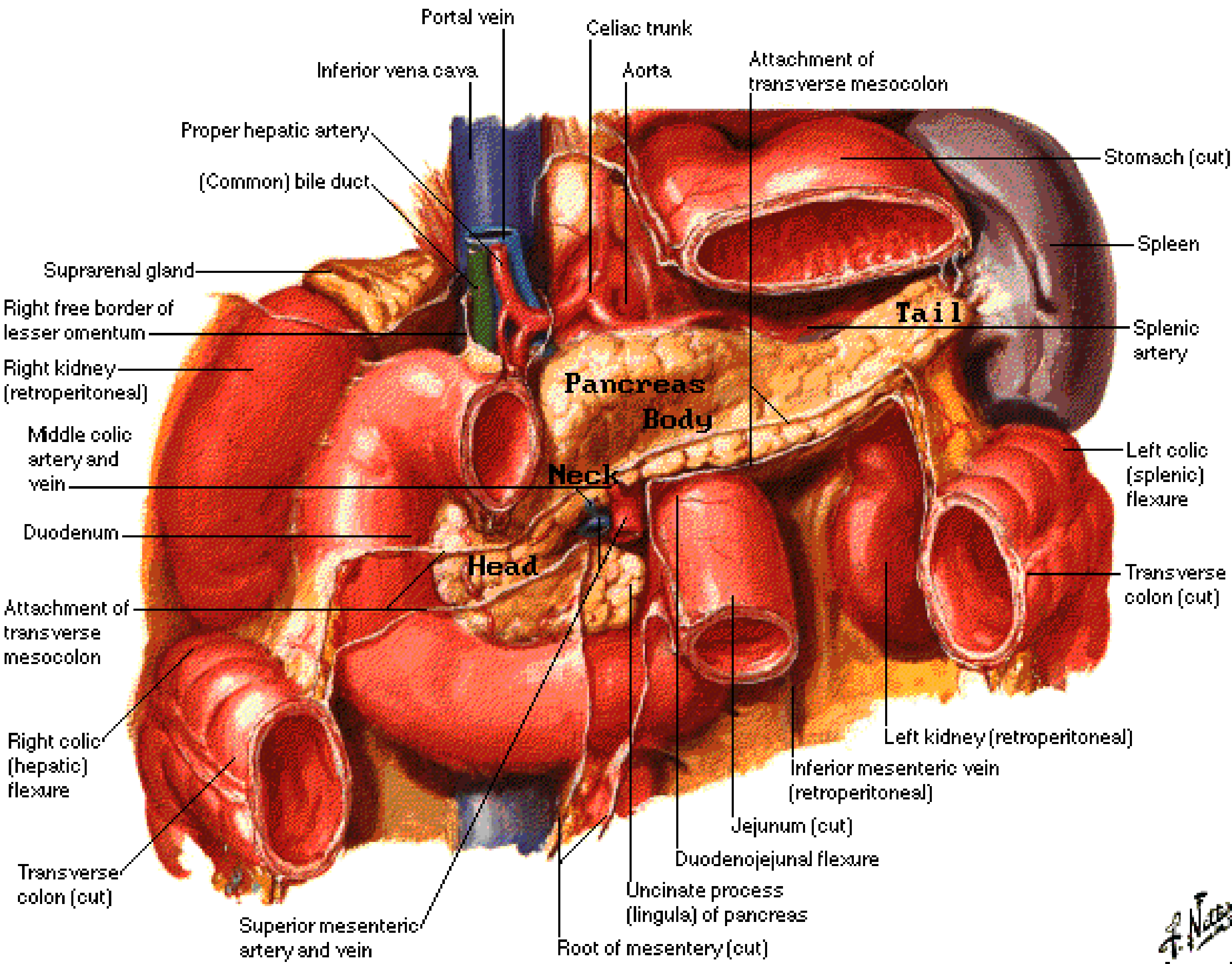
Reconstruction



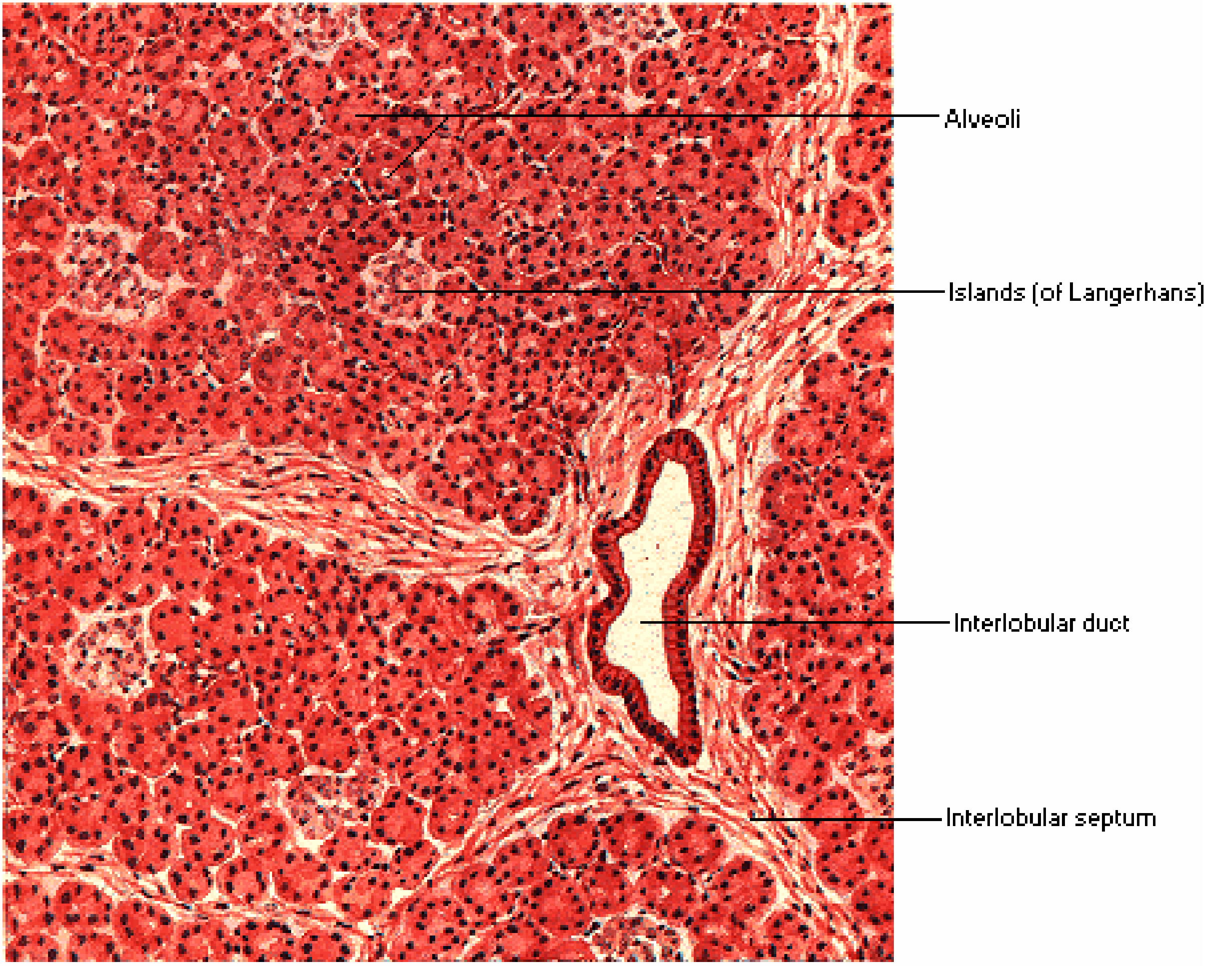


Short common channel
Common bile duct
Pancreatic duct
Sphincter of ampulla
No common channel
Common bile duct
Pancreatic duct
Duodenal wall
Long common channel
Sphincter of ampulla

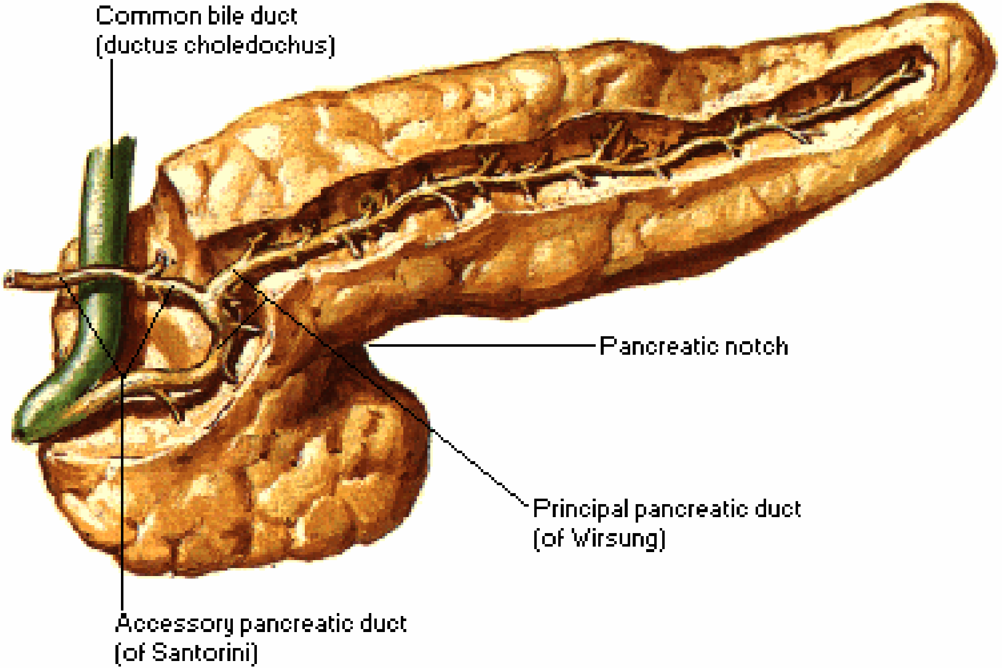
Pancreas in Situ

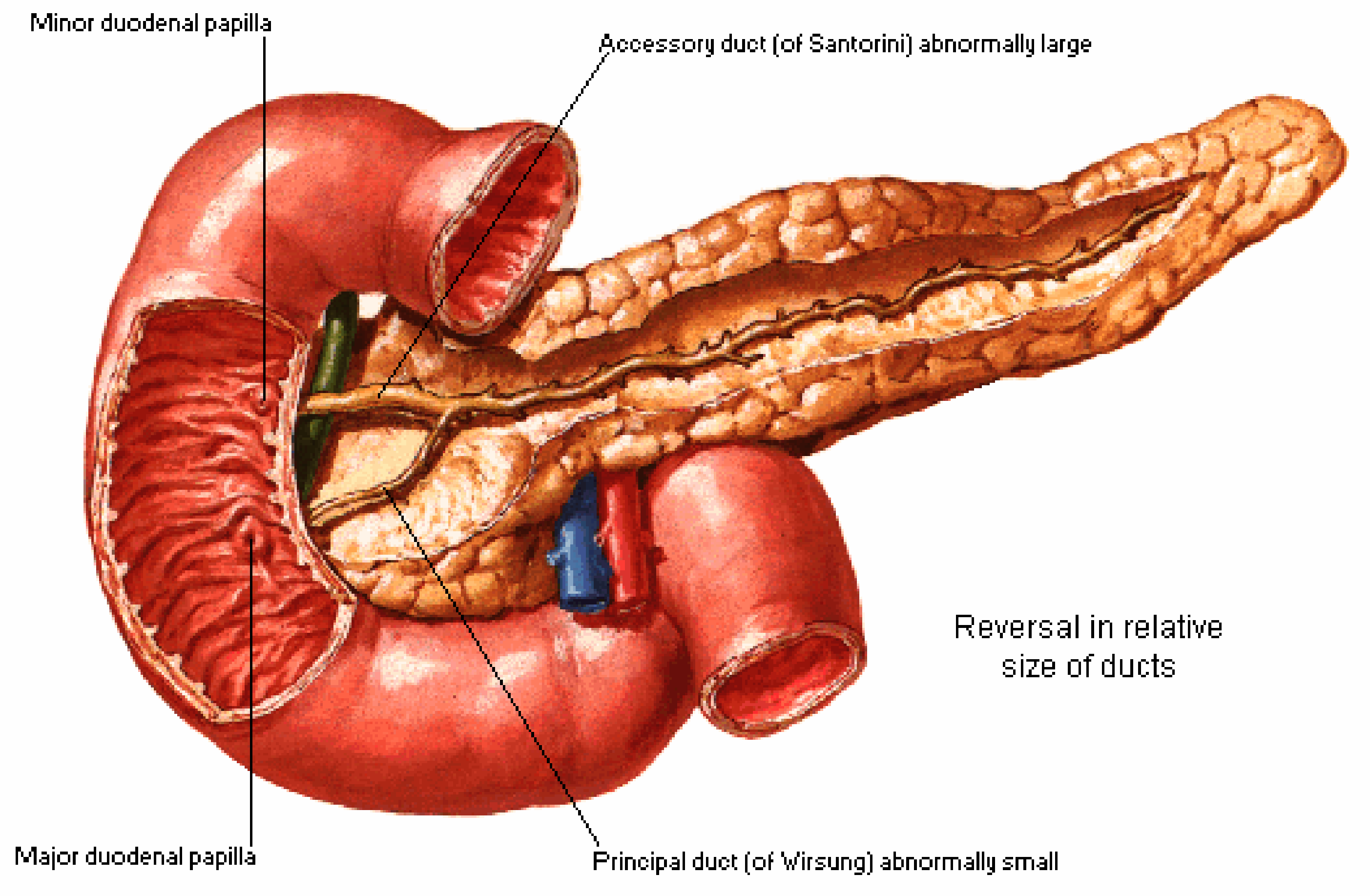


Histology

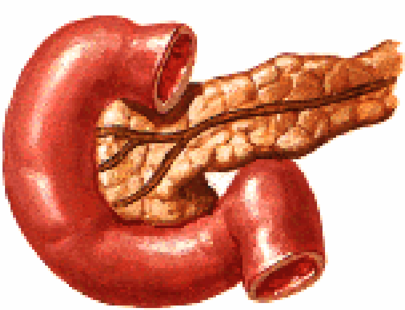


Low-power section of pancreas

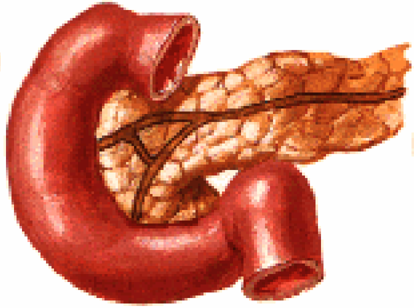

Common bile duct
(ductus choledochus)
Pancreatic notch
Principal pancreatic duct
(of Wirsung)
Accessory pancreatic duct
(of Santorini)



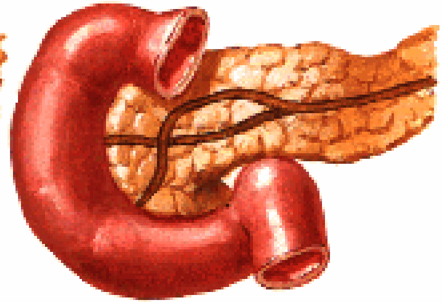
Minor duodenal papilla
Accessory duct (of Santorini) abnormally large
Reversal in relative size of ducts
Major duodenal papilla
Principal duct (of Wirsung) abnormally small



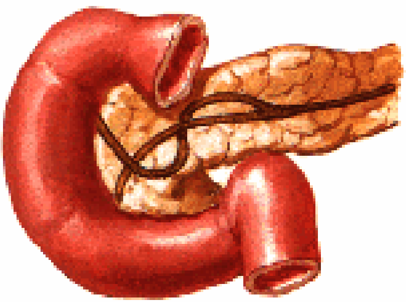
Double accessory duct (of Santorini)



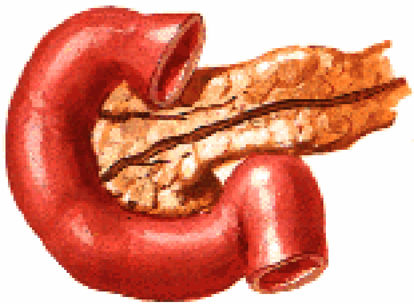
Anastomosis between ducts



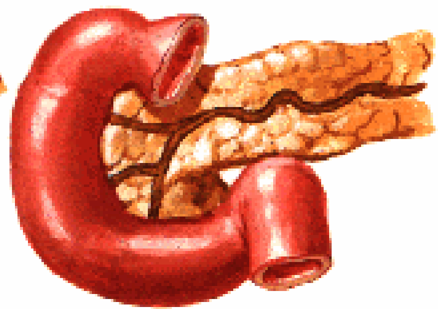
Crossing ducts



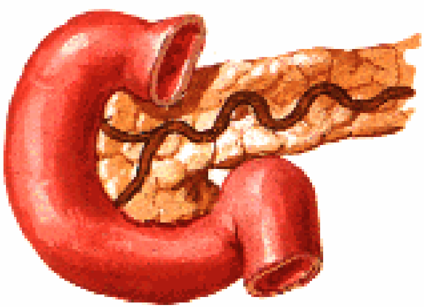
Double crossing of ducts



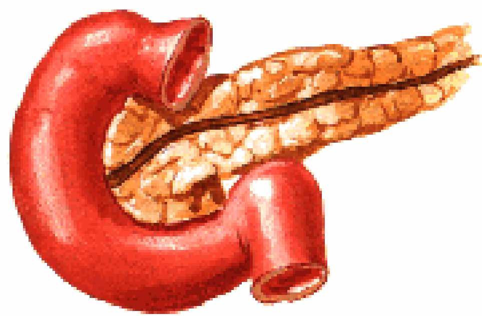
No communication between ducts



Double principal duct (of Wirsung)

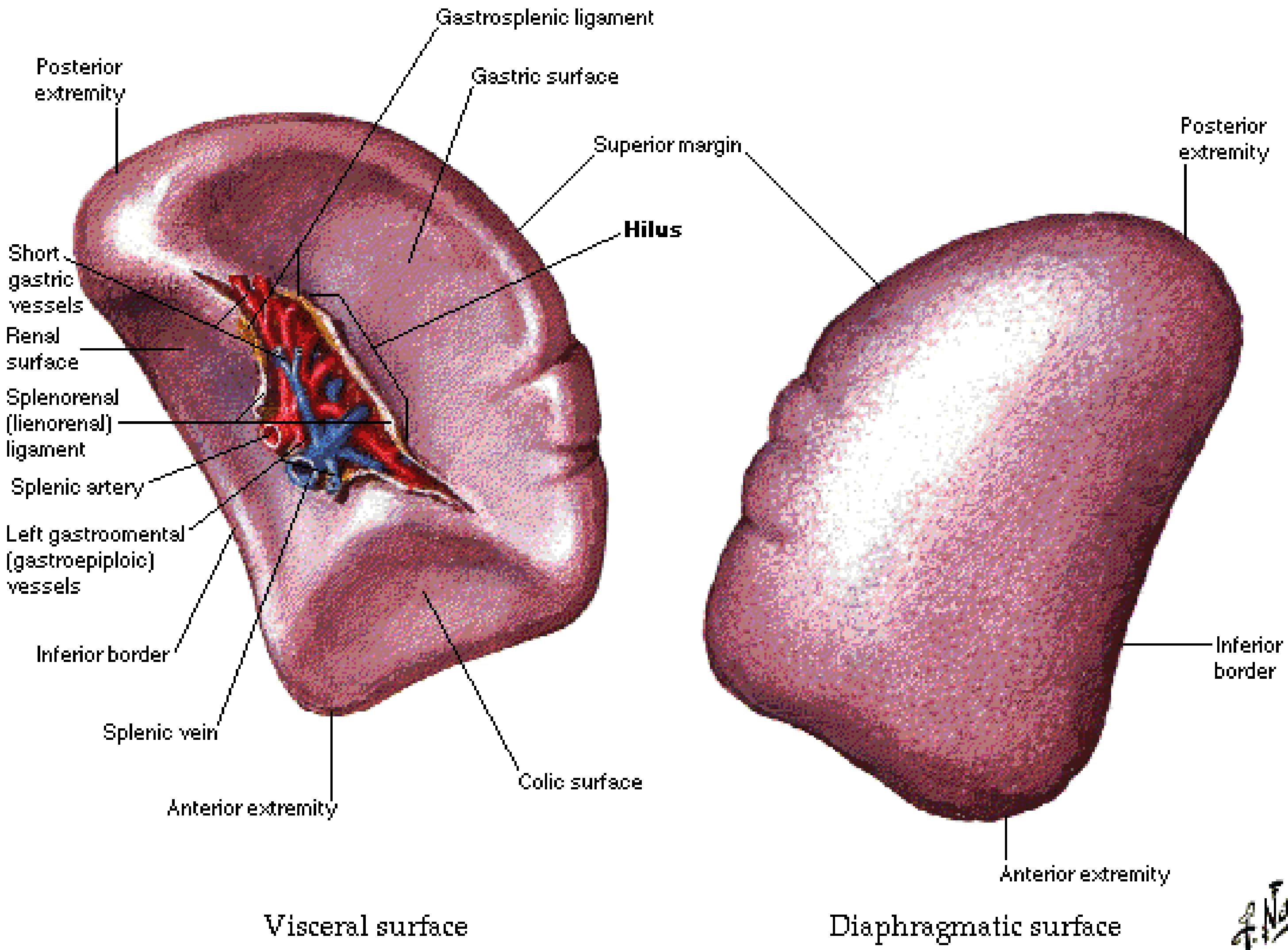


Tortuosity of ducts



Absence of accessory duct (of Santorini)

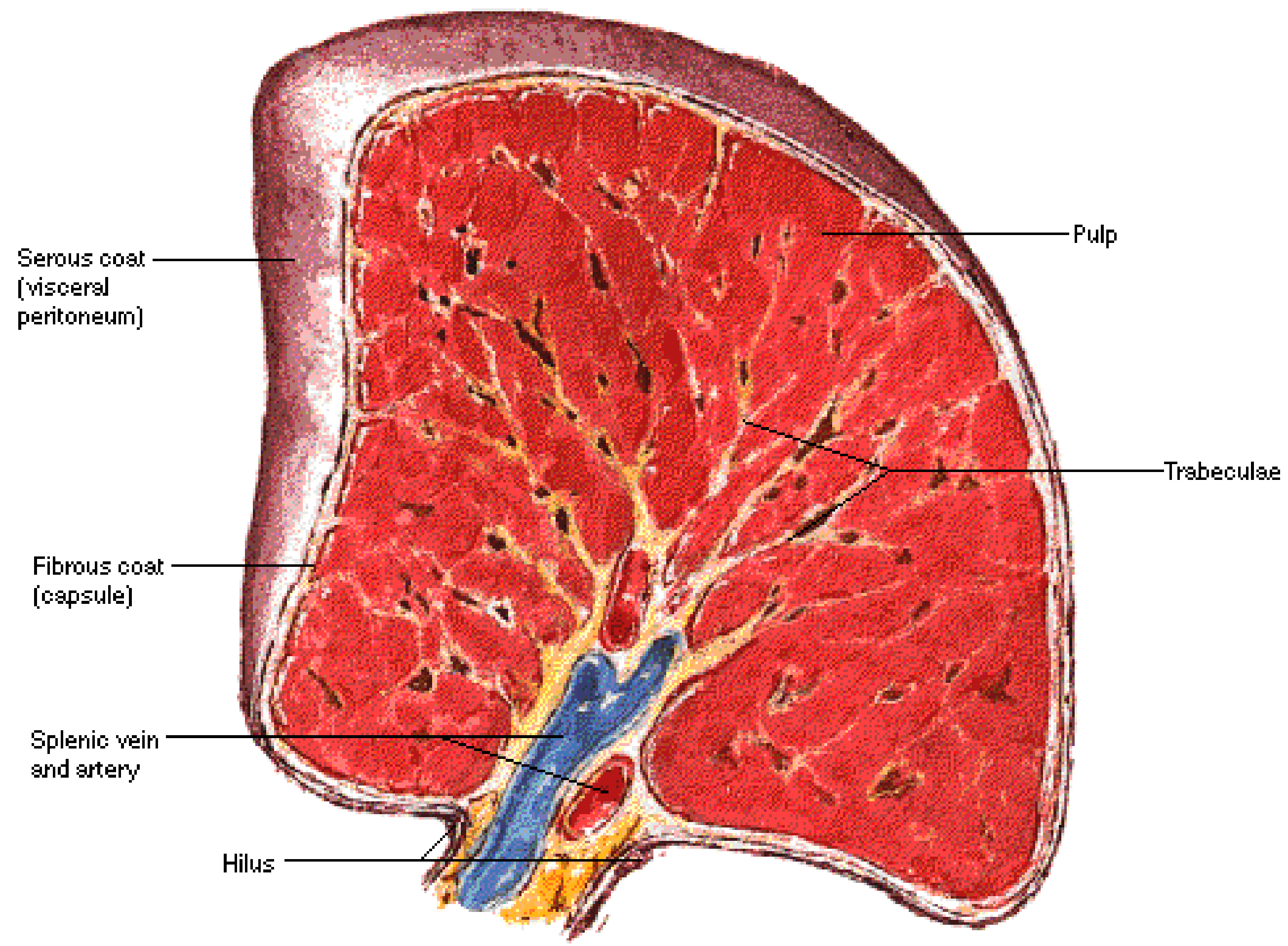
Spleen
Visceral and Diaphragmatic Surfaces



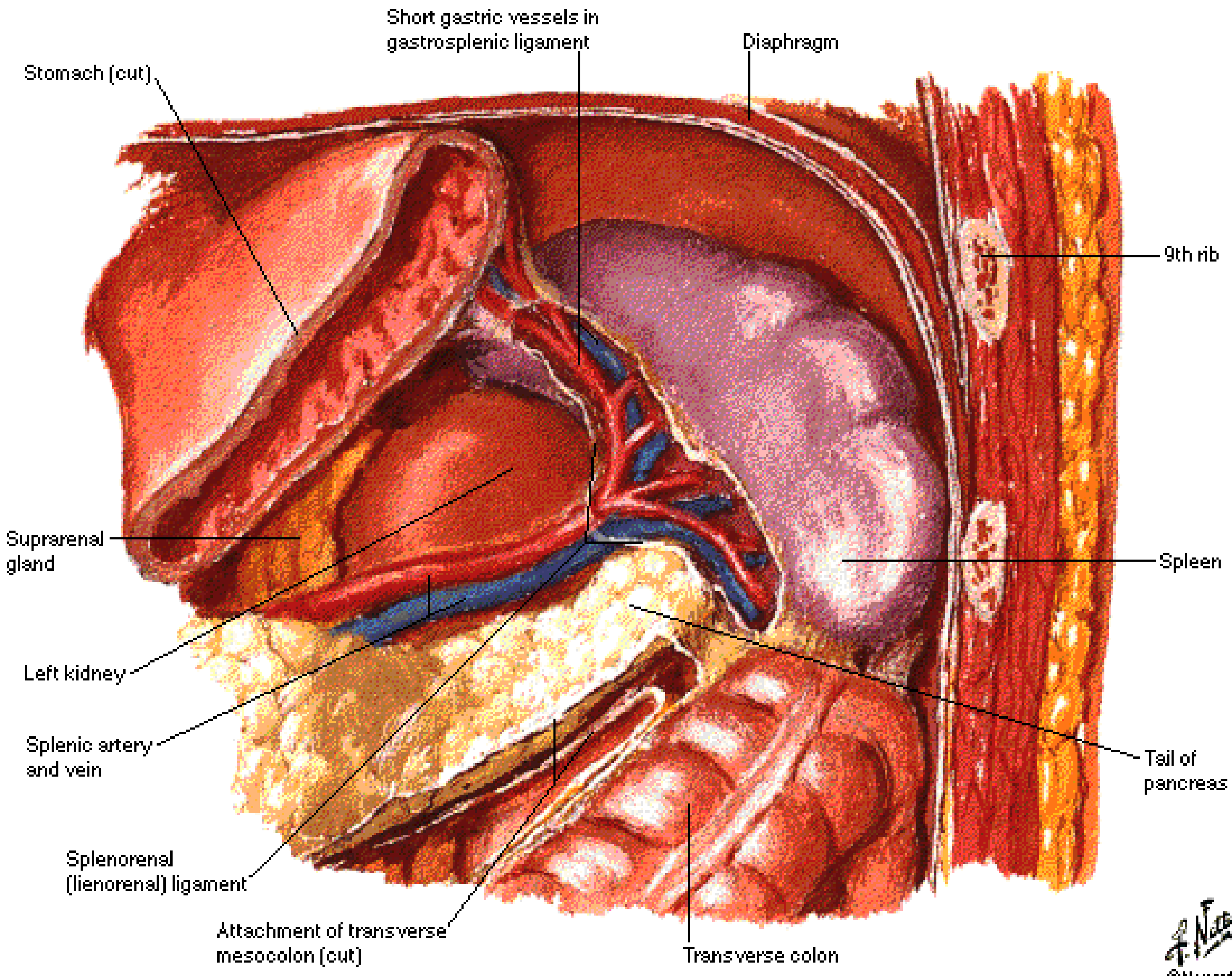
Visceral surface

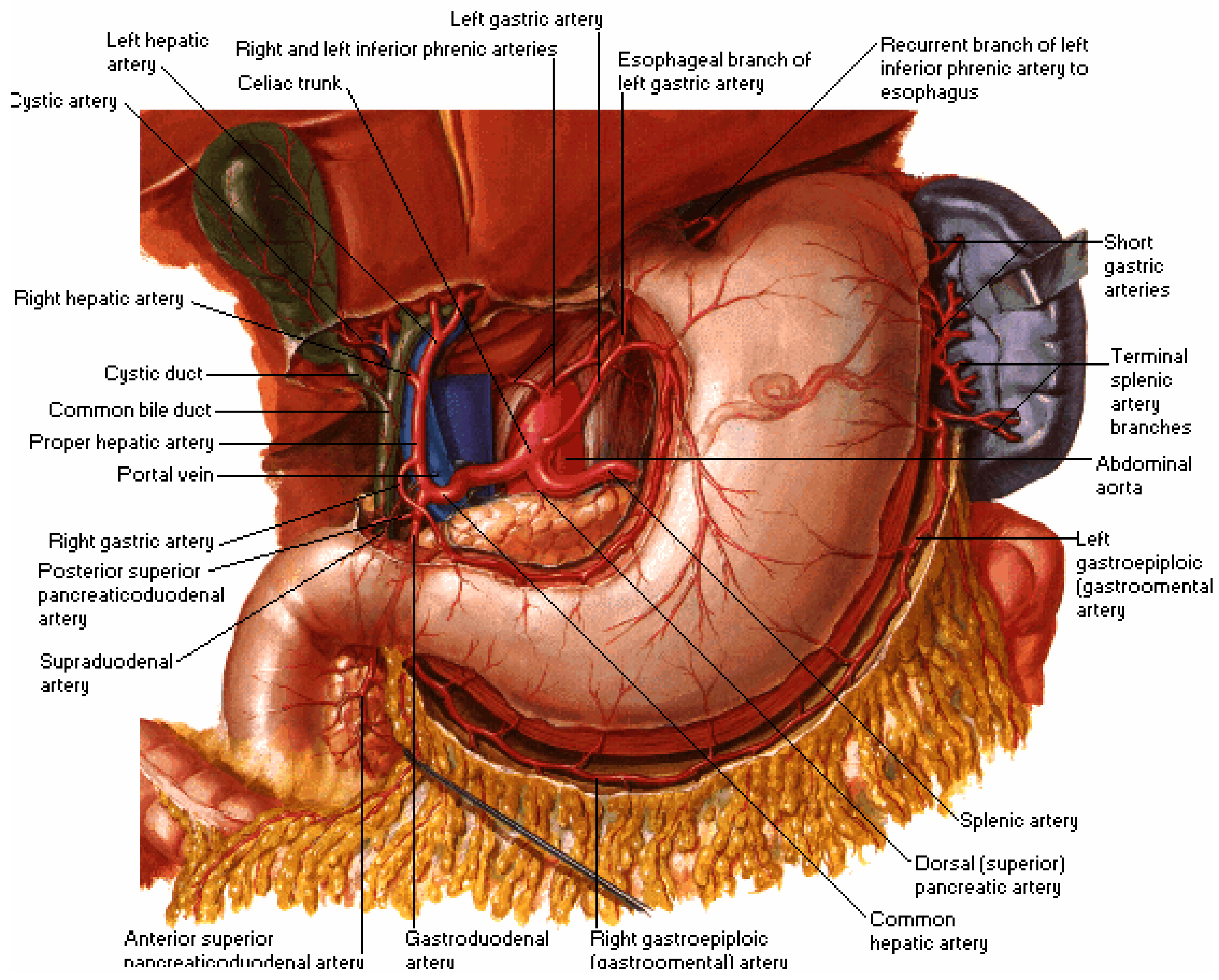
Diaphragmatic surface

Spleen
Cross Section

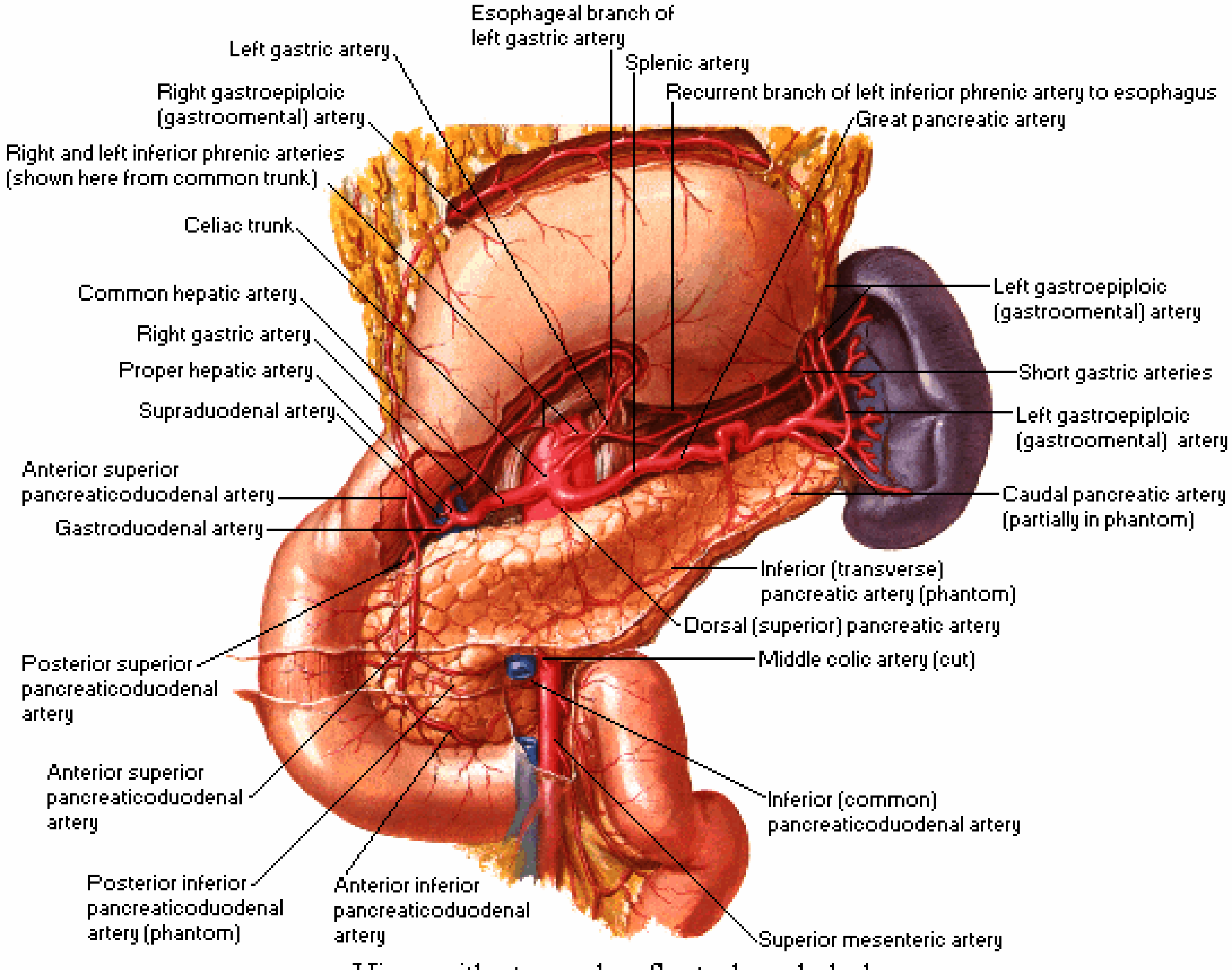


Spleen in Situ

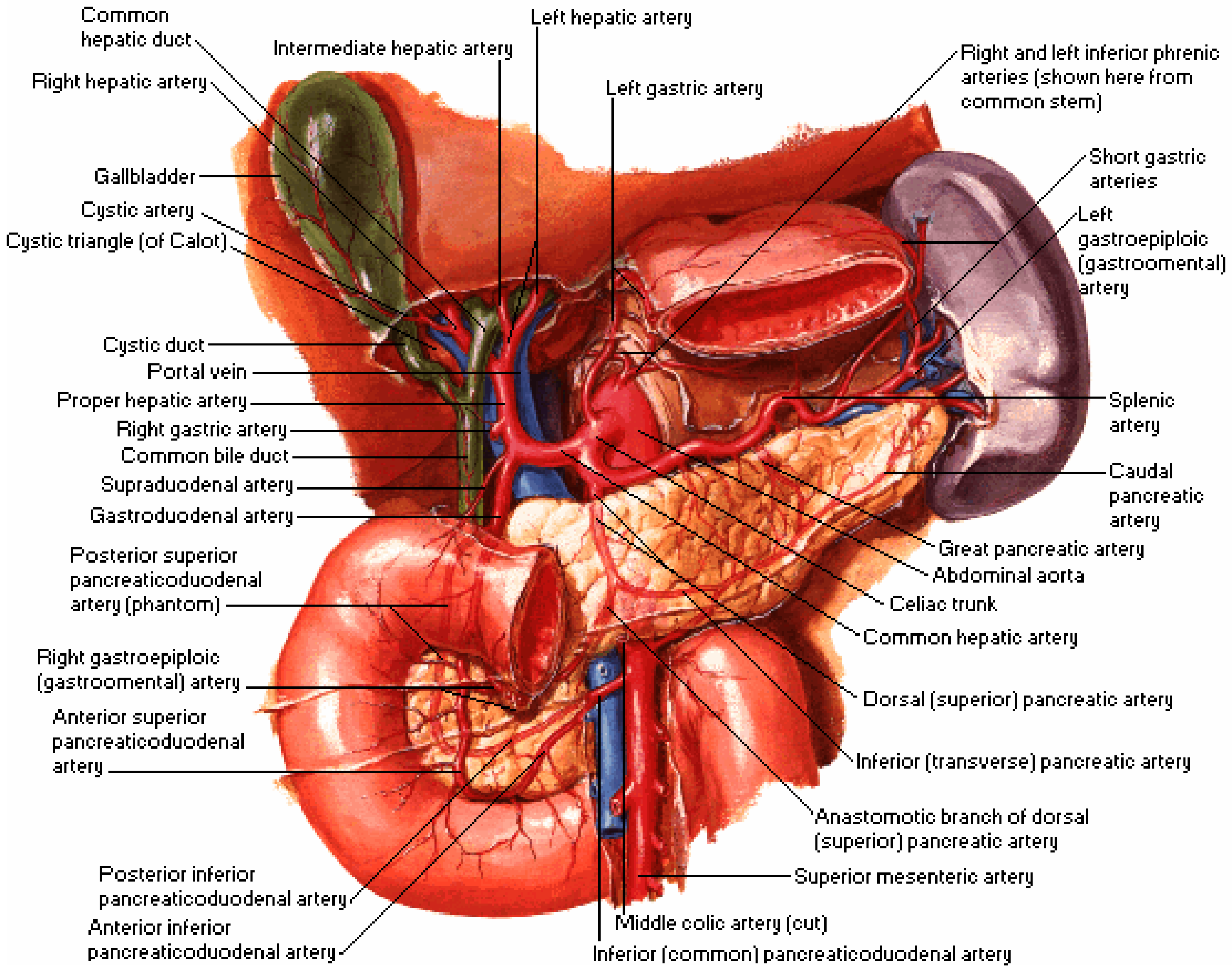




Left gastric artery
Left hepatic artery
Right and left inferior phrenic arteries
Esophageal branch of left gastric artery
Recurrent branch of left inferior phrenic artery to esophagus
Cystic artery
Celiac trunk
Short gastric arteries
Right hepatic artery
Terminal splenic artery branches
Cystic duct
Common bile duct
Proper hepatic artery
Portal vein
Abdominal aorta
Right gastric artery
Posterior superior pancreaticoduodenal artery
Left gastroepiploic (gastroomental artery
Supraduodenal artery
Splenic artery
Dorsal (superior) pancreatic artery
Common hepatic artery
Anterior superior pancreaticoduodenal artery
Gastroduodenal artery
Right gastroepiploic (gastroomental) artery

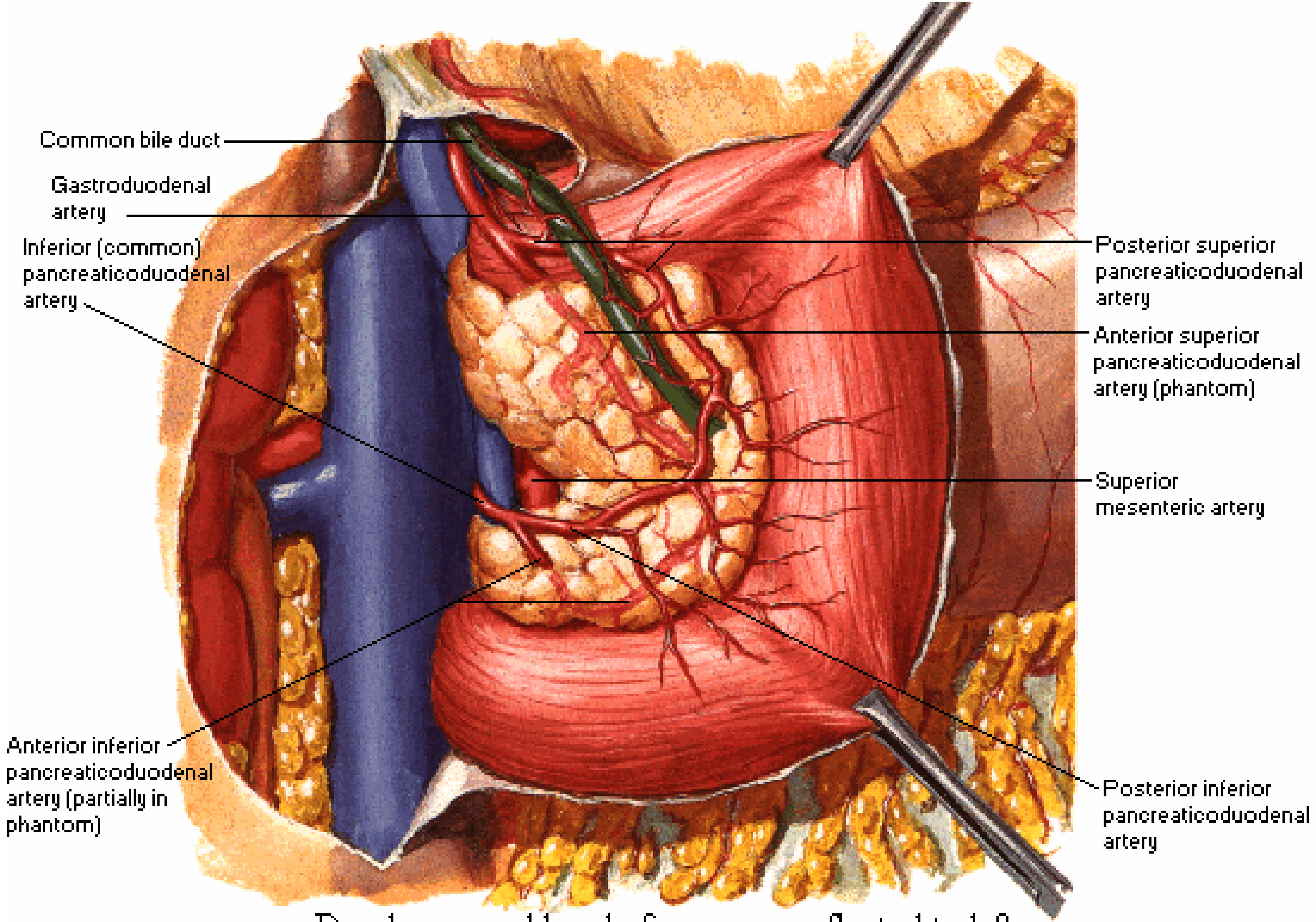


View with stomach reflected cephalad



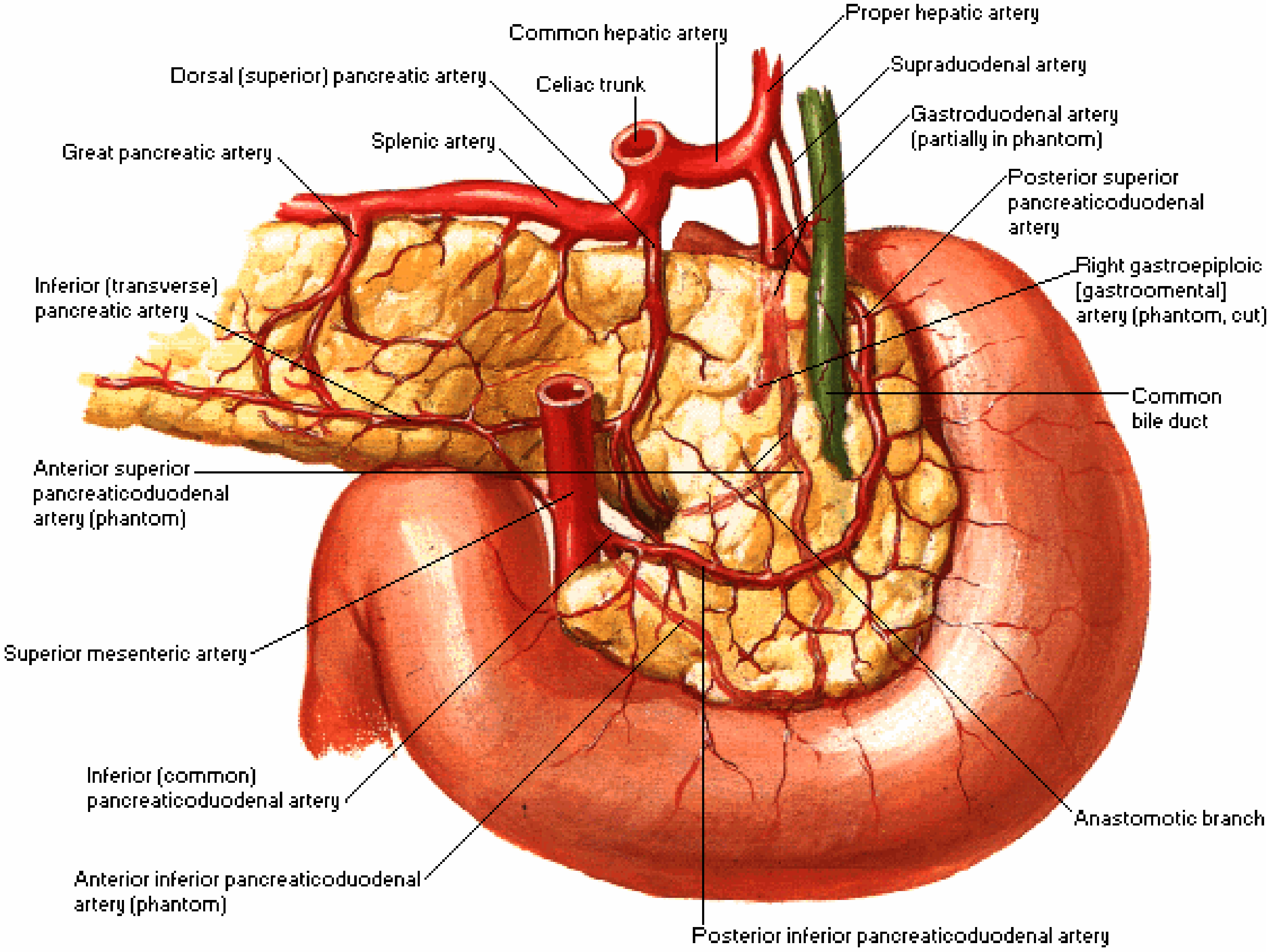
Common hepatic duct
Intermediate hepatic artery
Left hepatic artery
Right hepatic artery
Left gastric artery
Right and left inferior phrenic arteries (shown here from common stem)
Gallbladder
Short gastric arteries
Cystic artery
Cystic triangle (of Calot)
Left gastroepiploic (gastroomental) artery
Cystic duct
Portal vein
Proper hepatic artery
Splenic artery
Right gastric artery
Common bile duct
Caudal pancreatic artery
Supraduodenal artery
Gastroduodenal artery
Great pancreatic artery
Posterior superior pancreaticoduodenal artery (phantom)
Abdominal aorta
Celiac trunk
Common hepatic artery
Right gastroepiploic (gastroomental) artery
Dorsal (superior) pancreatic artery
Anterior superior pancreaticoduodenal artery
Inferior (transverse) pancreatic artery
Anastomotic branch of dorsal (superior) pancreatic artery
Superior mesenteric artery
Posterior inferior pancreaticoduodenal artery
Middle colic artery (cut)
Anterior inferior pancreaticoduodenal artery
Inferior (common) pancreaticoduodenal artery

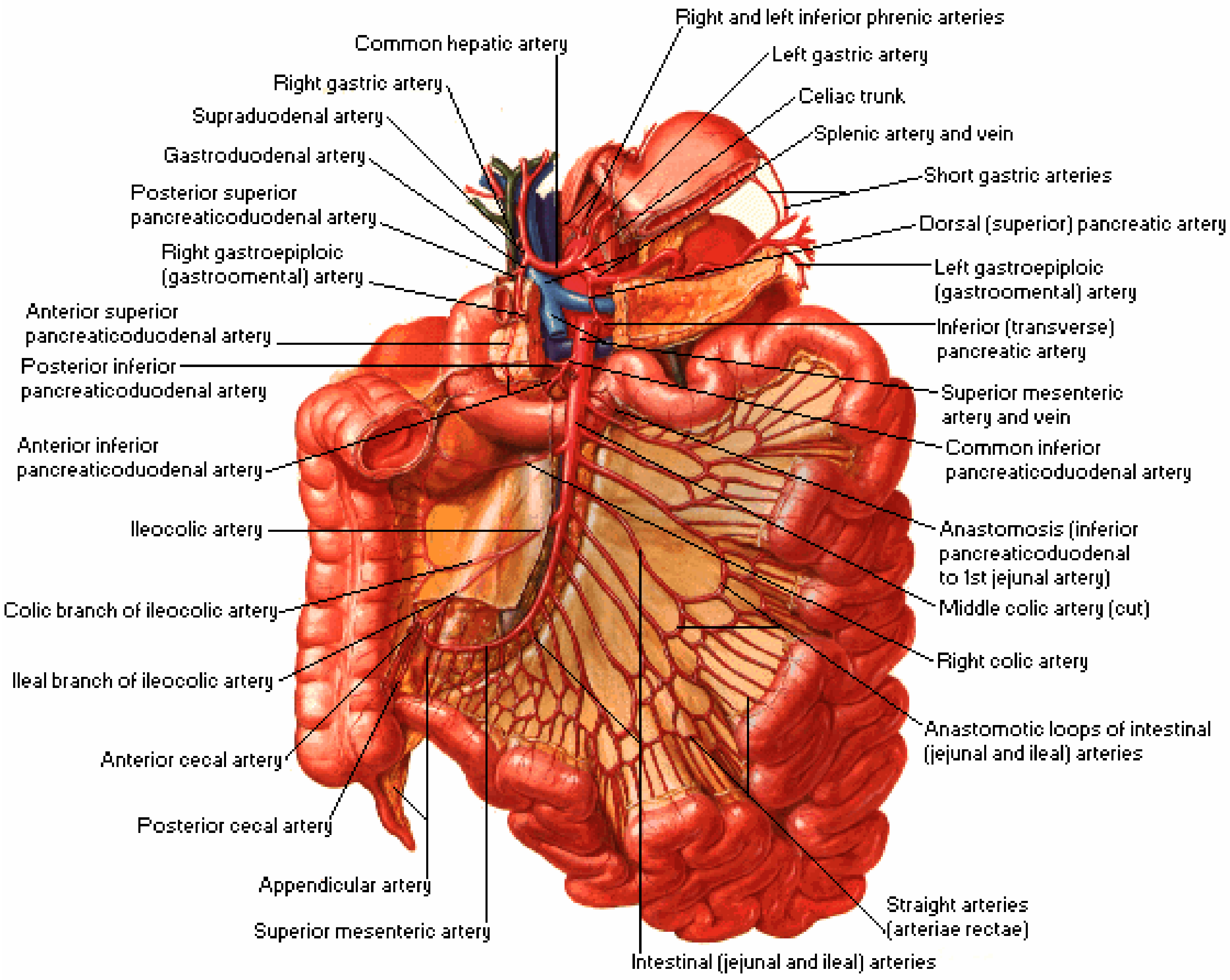
Reflected to Left

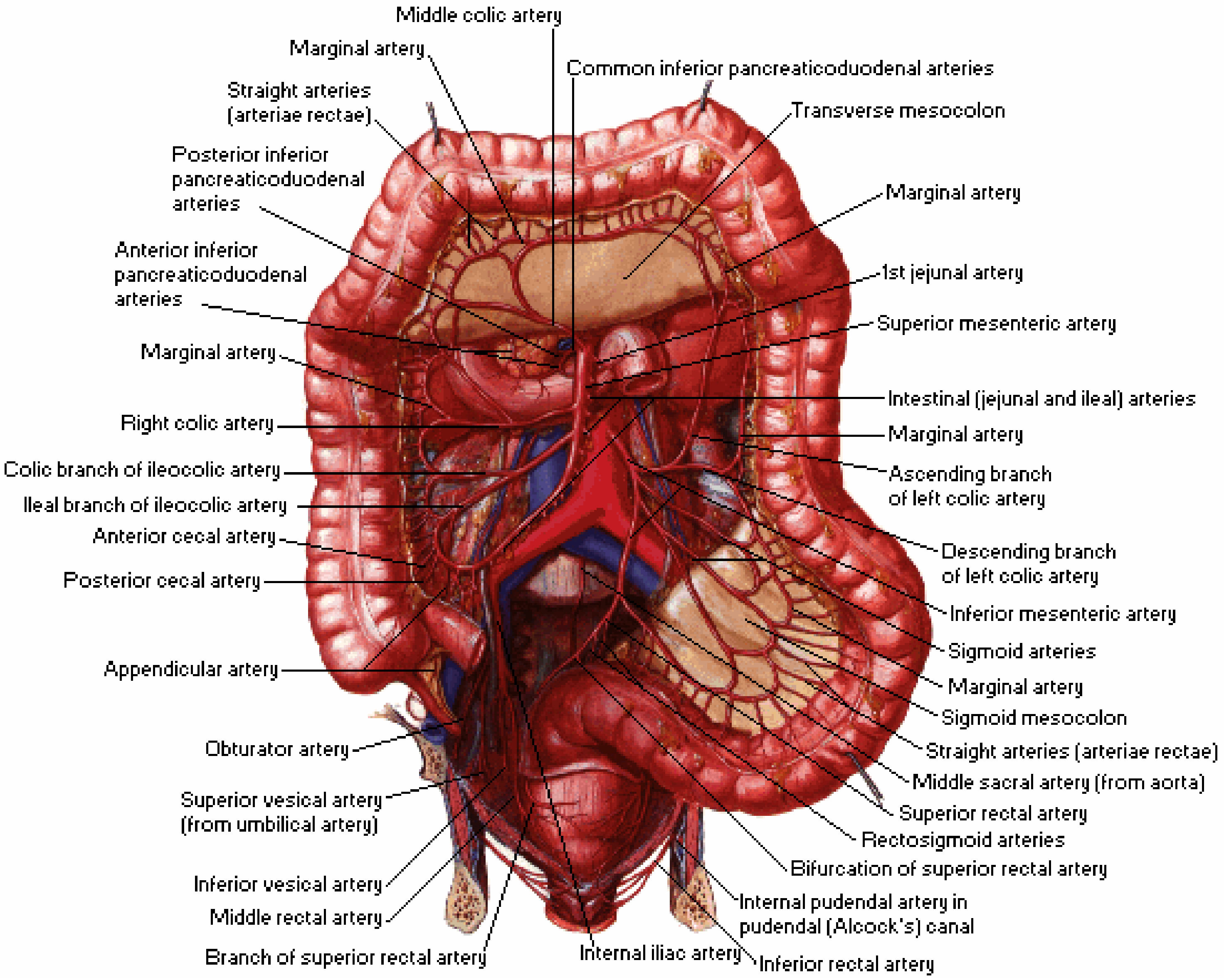


Duodenum and head of pancreas reflected to left

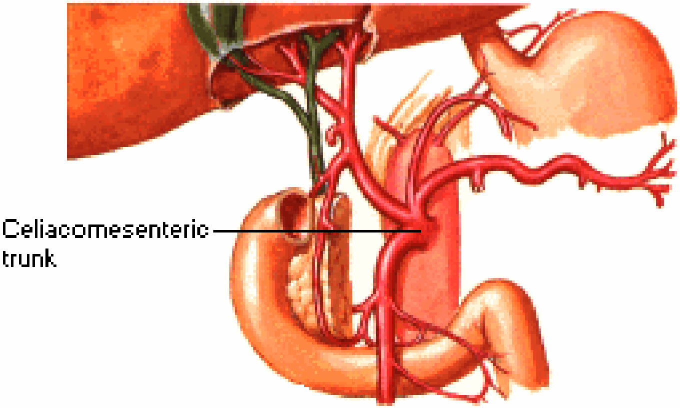
Posterior View



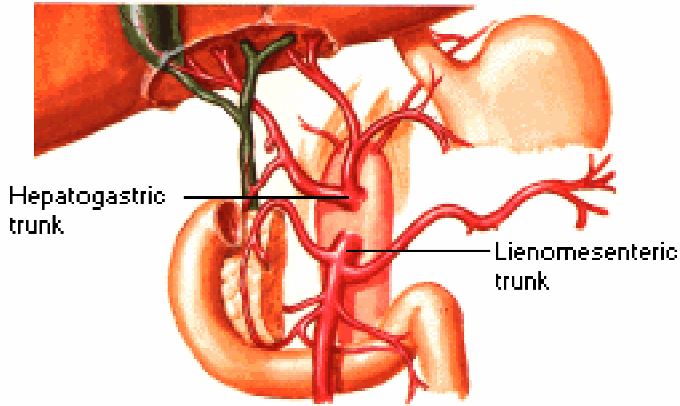

Right and left inferior phrenic arteries
Common hepatic artery
Left gastric artery
Right gastric artery
Celiac trunk
Supraduodenal artery
Splenic artery and vein
Gastroduodenal artery
Short gastric arteries
Posterior superior pancreaticoduodenal artery
Dorsal (superior) pancreatic artery
Right gastroepiploic (gastroomental) artery
Left gastroepiploic (gastroomental) artery
Anterior superior pancreaticoduodenal artery
Inferior (transverse) pancreatic artery
Posterior inferior pancreaticoduodenal artery
Superior mesenteric artery and vein
Anterior inferior pancreaticoduodenal artery
Common inferior pancreaticoduodenal artery
Ileocolic artery
Anastomosis (inferior pancreaticoduodenal to 1st jejunal artery)
Colic branch of ileocolic artery
Middle colic artery (cut)
Right colic artery
Ileal branch of ileocolic artery
Anastomotic loops of intestinal (jejunal and ileal) arteries
Anterior cecal artery
Posterior cecal artery
Appendicular artery
Straight arteries (arteriae rectae)
Superior mesenteric artery
Intestinal (jejunal and ileal) arteries



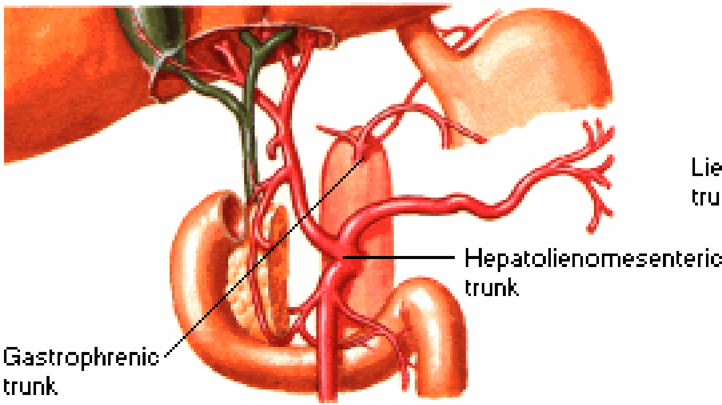
Middle colic artery
Marginal artery
Common inferior pancreaticoduodenal arteries
Straight arteries (arteriae rectae)
Transverse mesocolon
Posterior inferior pancreaticoduodenal arteries
Marginal artery
Anterior inferior pancreaticoduodenal arteries
1st jejunal artery
Superior mesenteric artery
Marginal artery
Intestinal (jejunal and ileal) arteries
Right colic artery
Marginal artery
Colic branch of ileocolic artery
Ascending branch of left colic artery
Ileal branch of ileocolic artery
Anterior cecal artery
Descending branch of left colic artery
Posterior cecal artery
Inferior mesenteric artery
Sigmoid arteries
Appendicular artery
Marginal artery
Sigmoid mesocolon
Straight arteries (arteriae rectae)
Obturator artery
Middle sacral artery (from aorta)
Superior vesical artery (from umbilical artery)
Superior rectal artery
Rectosigmoid arteries
Bifurcation of superior rectal artery
Inferior vesical artery
Internal pudendal artery in pudendal (Alcock's) canal
Middle rectal artery
Branch of superior rectal artery
Internal iliac artery
Inferior rectal artery



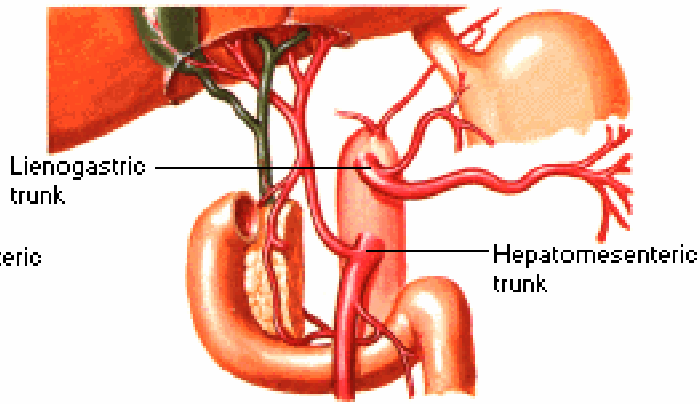
Common origin of celiac trunk and superior mesenteric artery



Splenic artery takes origin from superior mesenteric (note replaced left hepatic artery from left gastric)

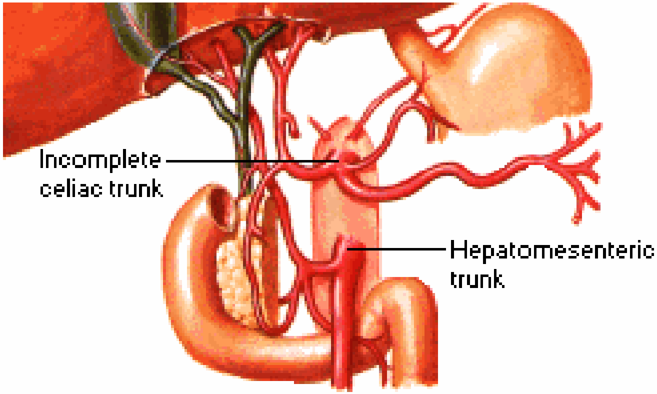


Splenic and hepatic arteries take origin from superior mesenteric

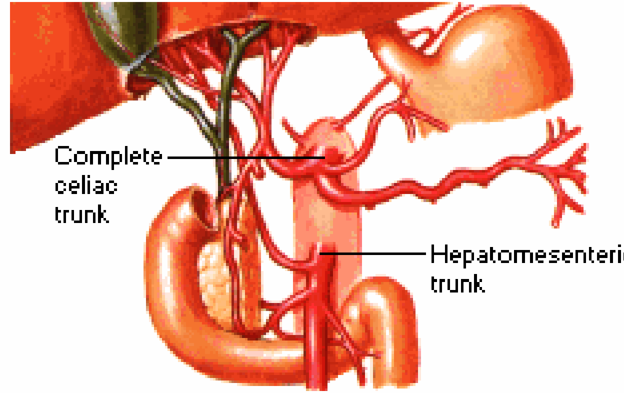


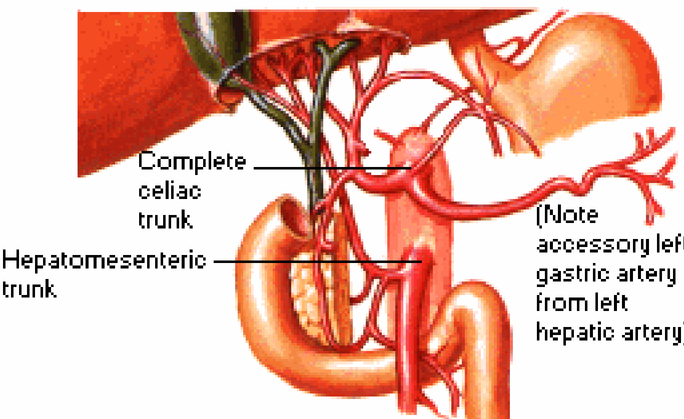
Replaced hepatic artery takes origin from superior mesenteric (note inferior pancreaticoduodenal artery from 1st jejuna"

Replaced right hepatic artery takes origin from superior mesenteric; inferior pancreaticoduodenal and 1st jejunal arteries from replaced right hepatic artery

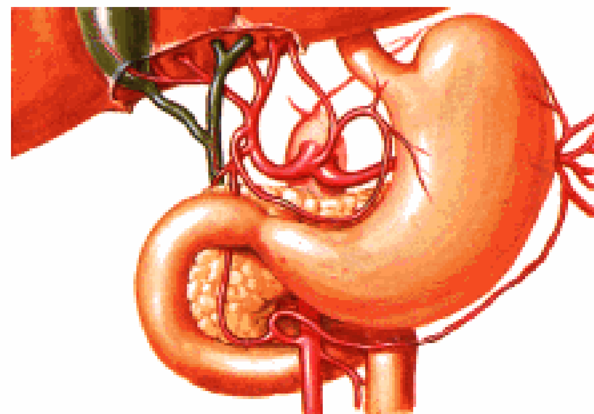


Accessory right hepatic artery takes origin from superior mesenteric artery

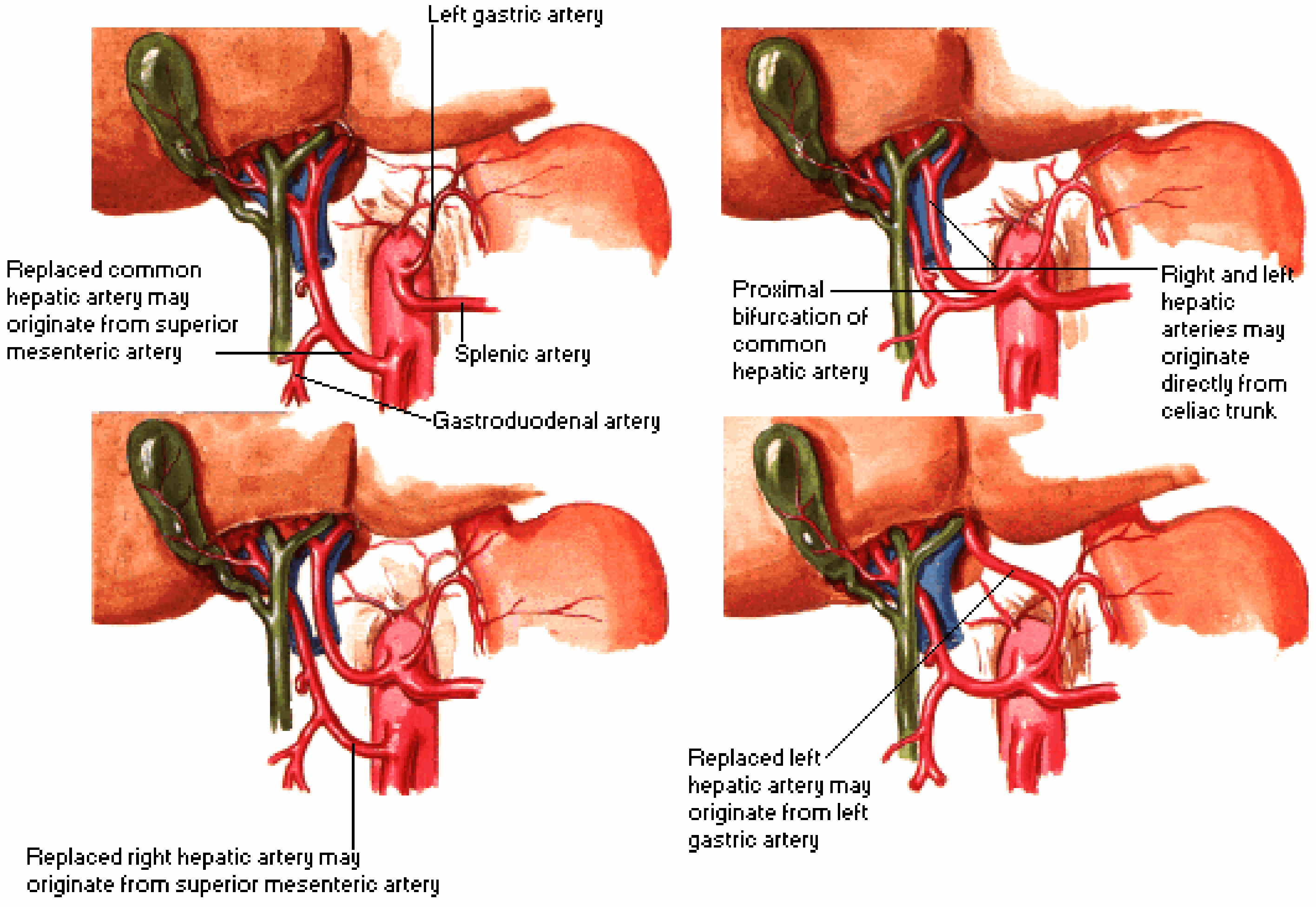




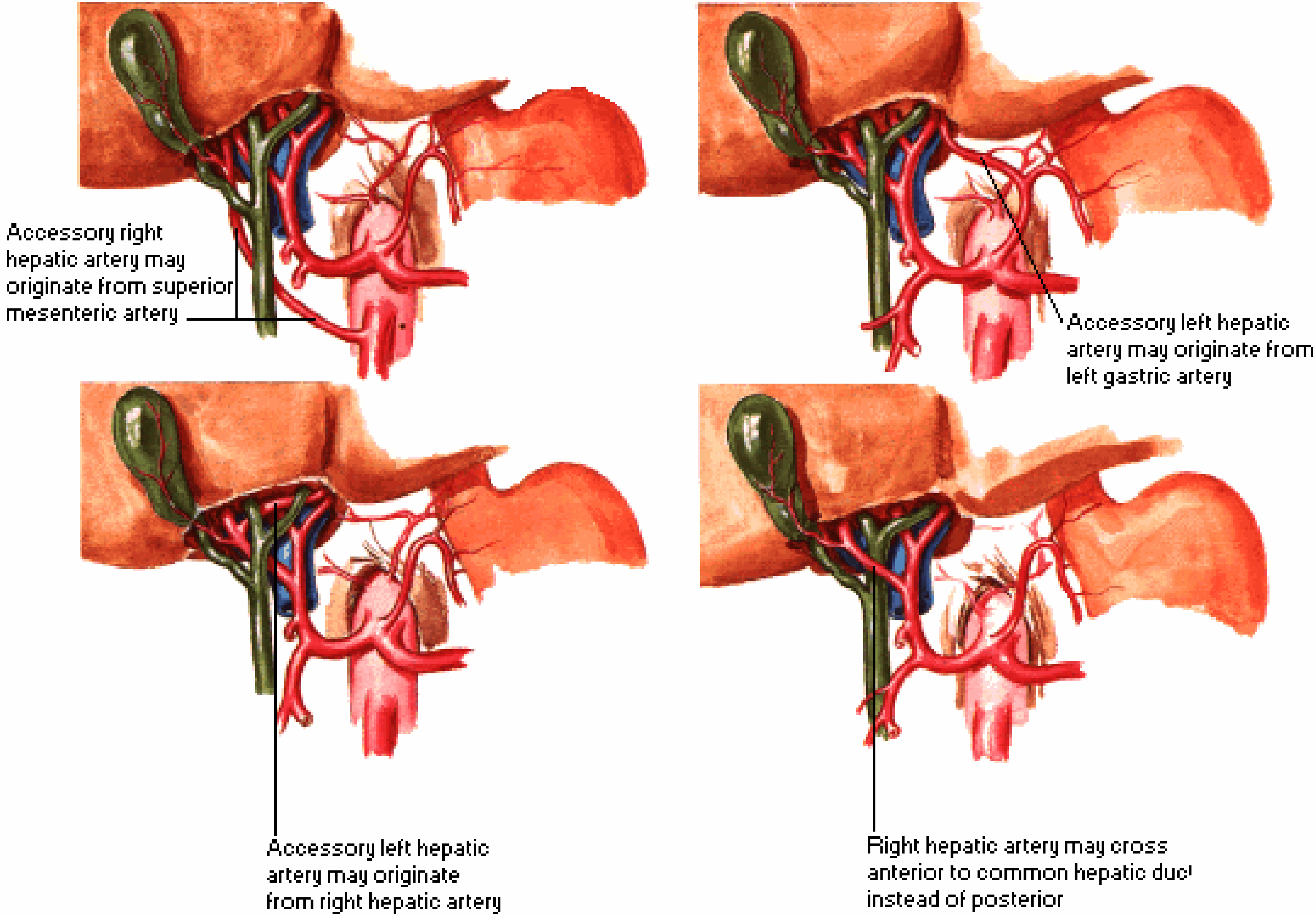
Accessory right hepatic artery takes origin from superior mesenteric; inferior pancreaticoduodenal arteries from accessory right hepatic; 1st jejunal artery from anterior inferior pancreaticoduodenal artery



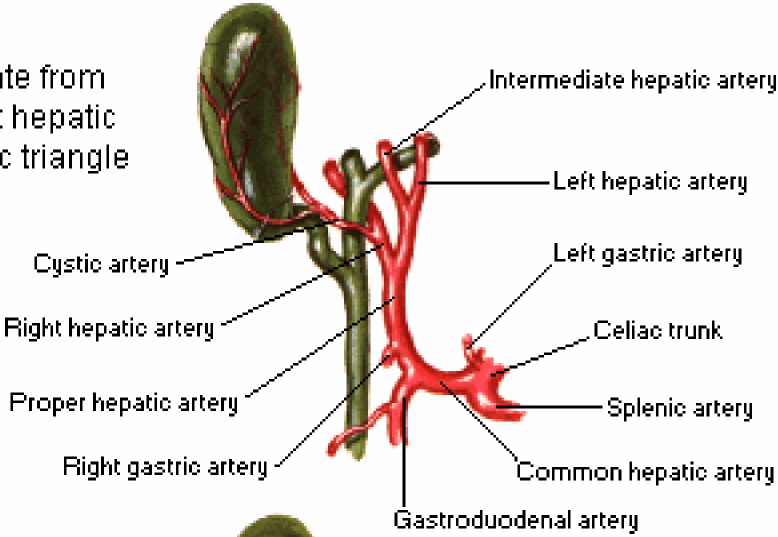
Right gastroepiploic (gastroomental) artery takes origin from superior mesenteric artery (note accessory left hepatic artery from left gastric)



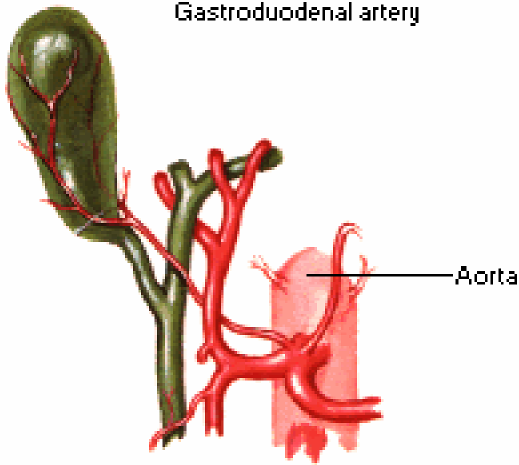
Left gastric artery
Replaced common hepatic artery may originate from superior mesenteric artery
Splenic artery
Gastroduodenal artery
Proximal bifurcation of common hepatic artery
Right and left hepatic arteries may originate directly from celiac trunk
Replaced right hepatic artery may originate from superior mesenteric artery
Replaced left hepatic artery may originate from left gastric artery

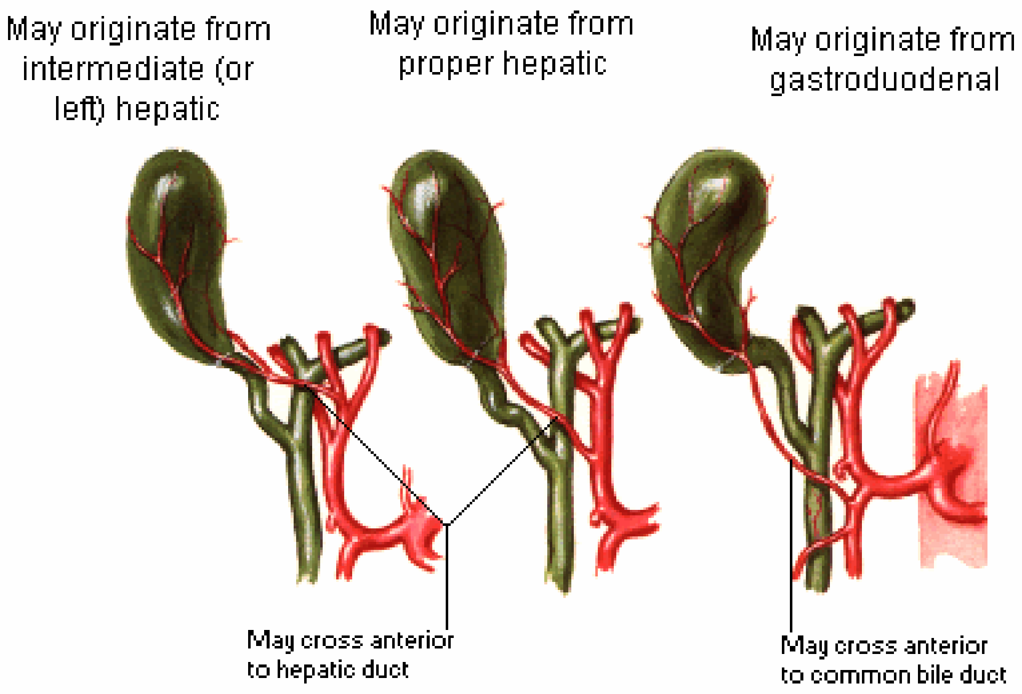

Accessory right hepatic artery may originate from superior mesenteric artery
Accessory left hepatic artery may originate from left gastric artery
Accessory left hepatic artery may originate from right hepatic artery
Right hepatic artery may cross anterior to common hepatic duct instead of posterior

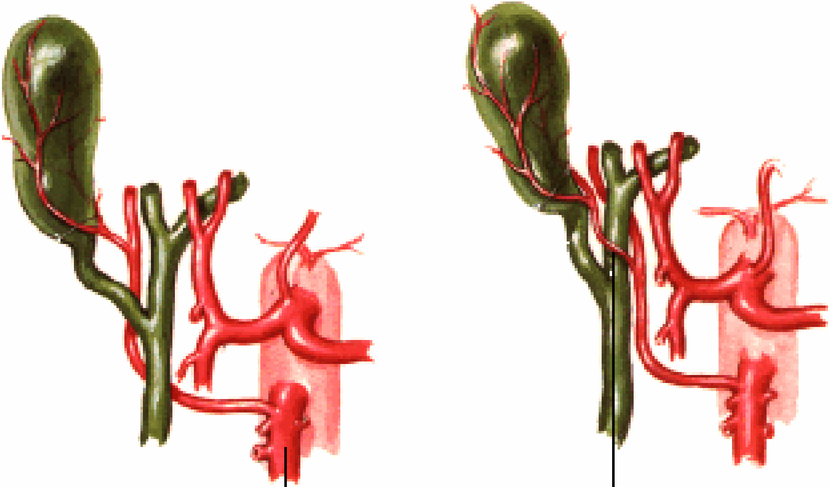
May originate from normal right hepatic outside cystic triangle

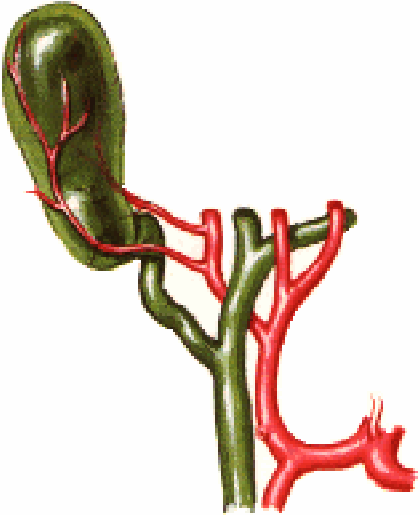


May originate from celiac trunk (or from aorta)

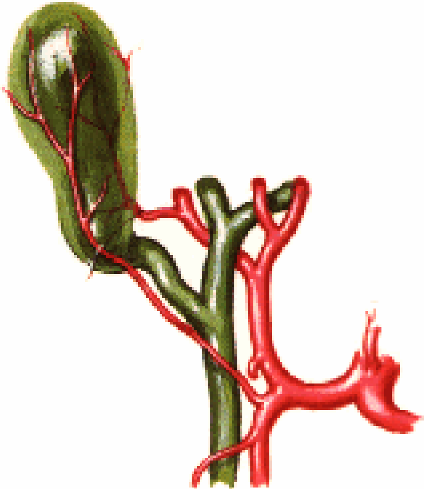



May originate from intermediate (or left) hepatic
May originate from proper hepatic
May originate from gastroduodenal
May cross anterior to hepatic duct
May cross anterior to common bile duct

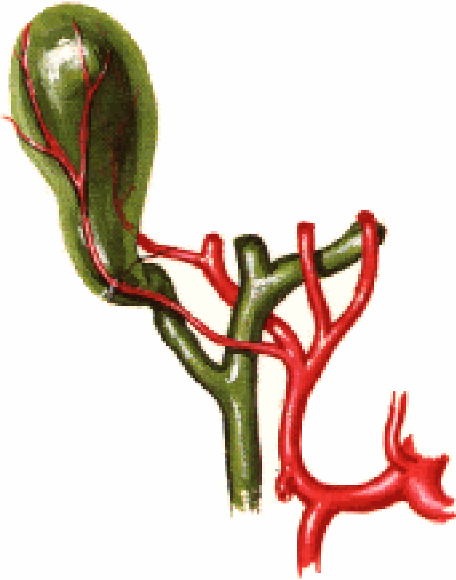

May originate in cystic triangle from aberrant right hepatic (from superior mesenteric)
May originate outside cystic triangle from aberrant right hepatic
Superior mesenteric artery
May cross anterior to hepatic duct



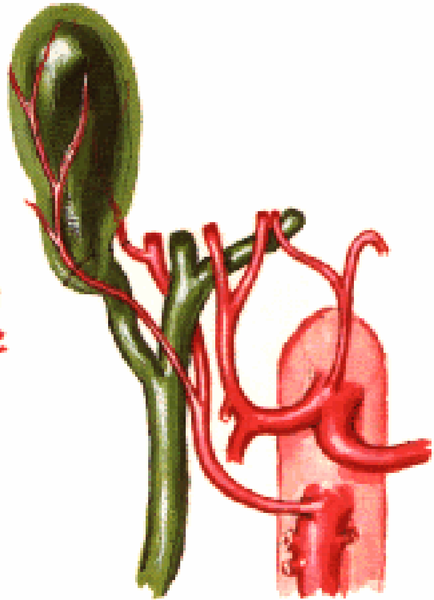
Double cystic artery; both from normal right hepatic in cystic triangle



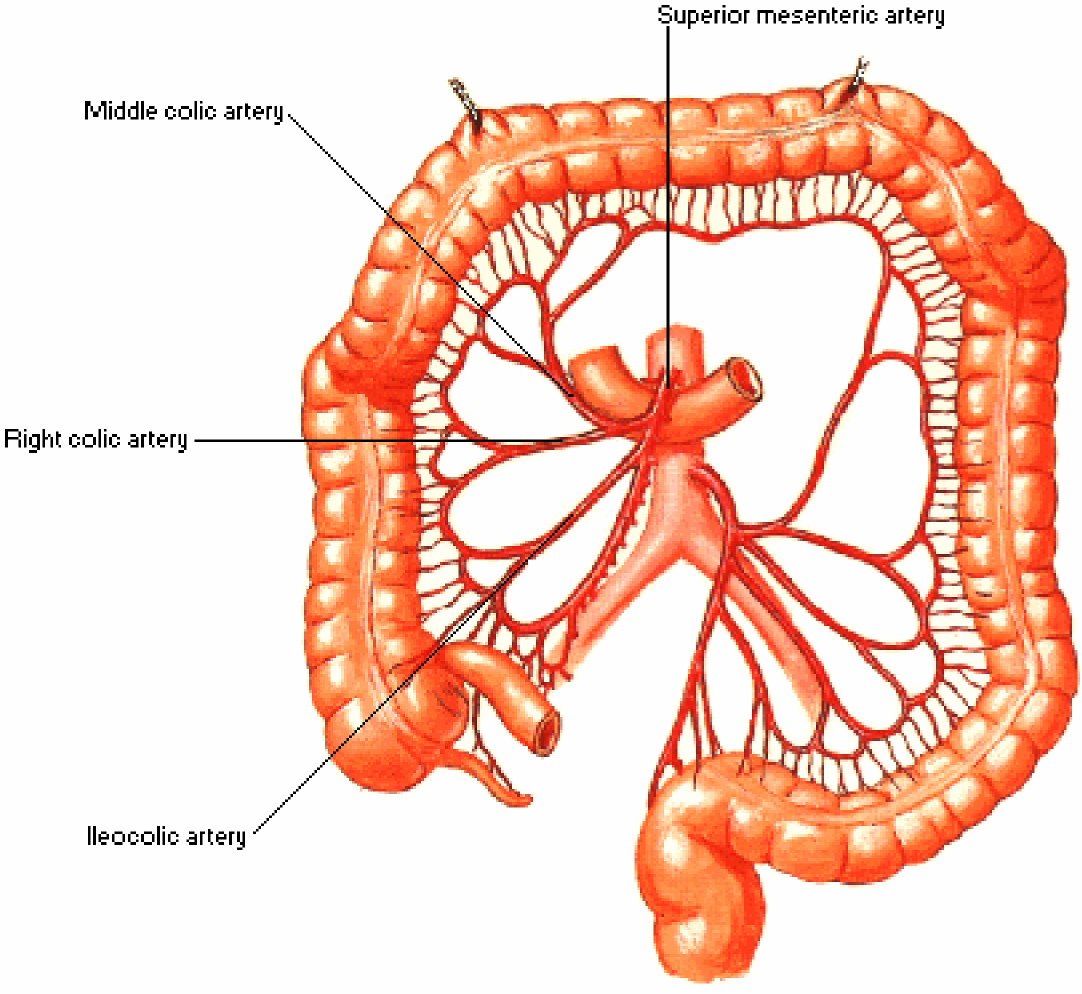
Double cystic artery; posterior from right hepatic, anterior from gastroduodenal



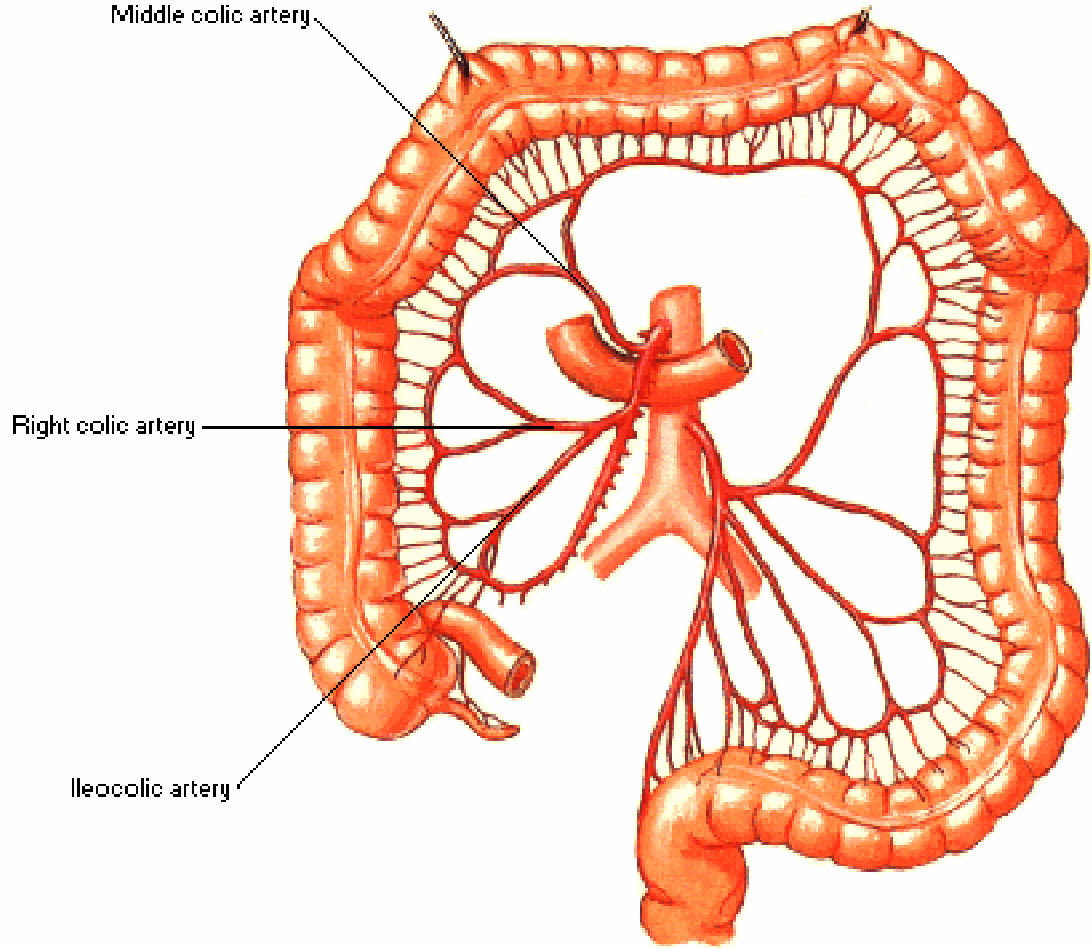
Double cystic artery; both from normal right hepatic, one inside and one outside cystic triangle



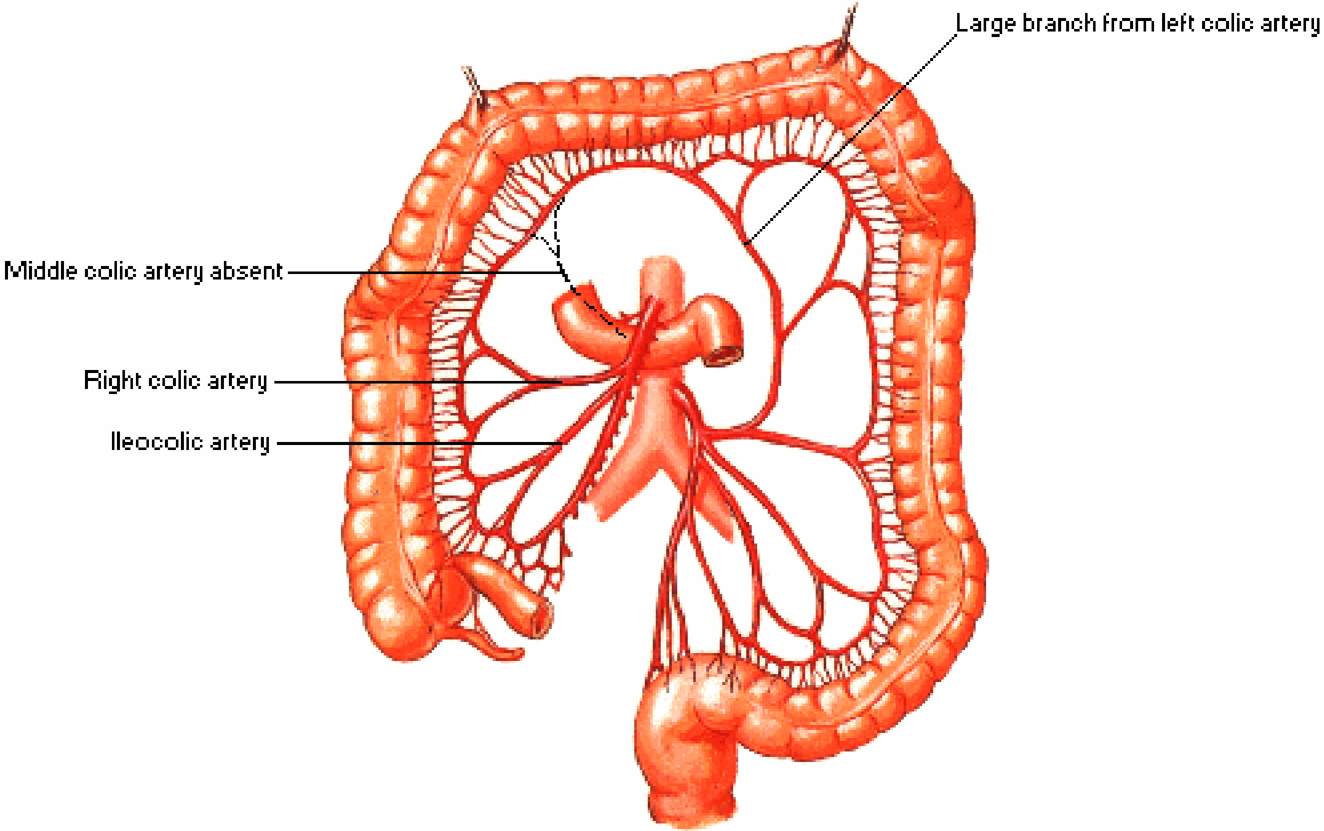
Double cystic artery; both from aberrant right hepatic, one inside and one outside cystic triangle



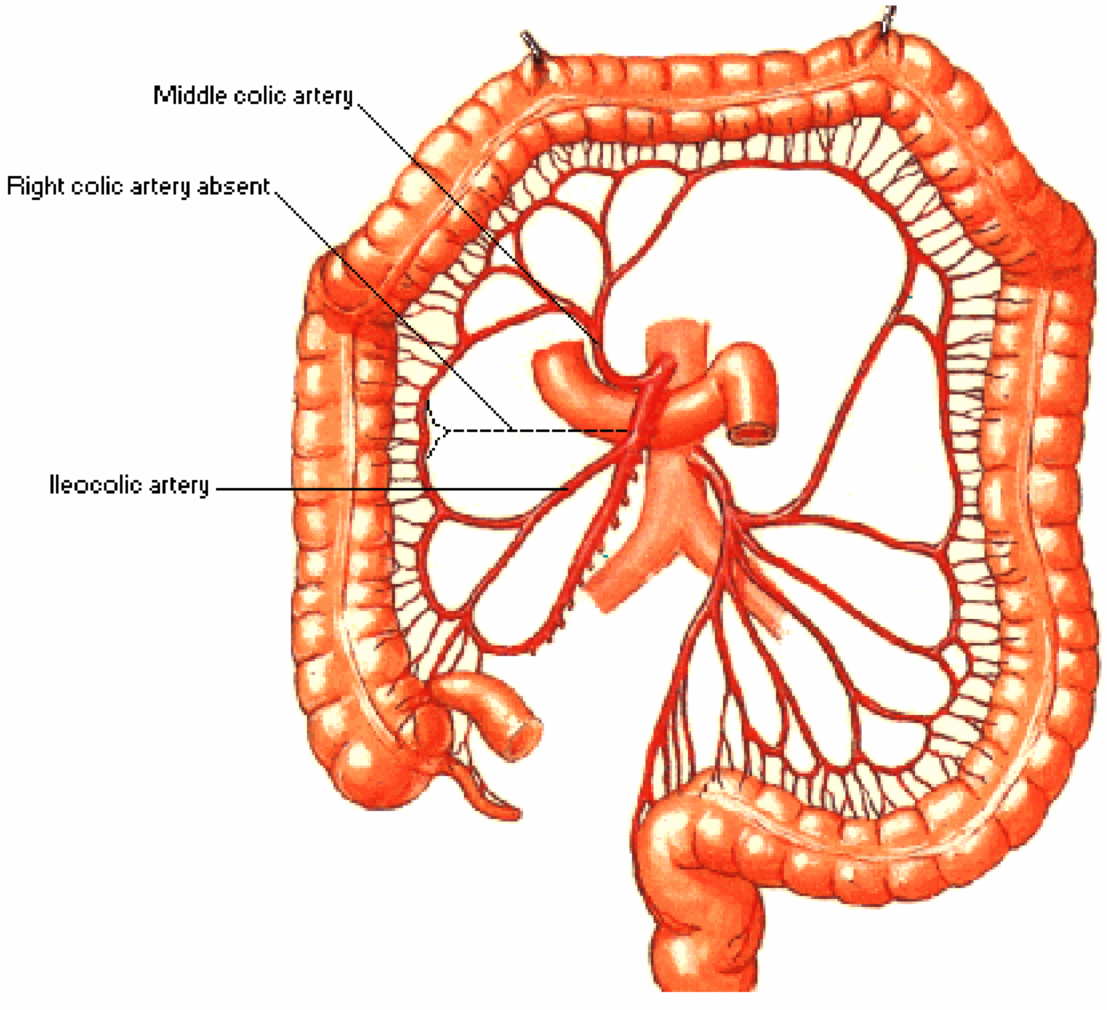
Common origin of right colic and middle colic arteries



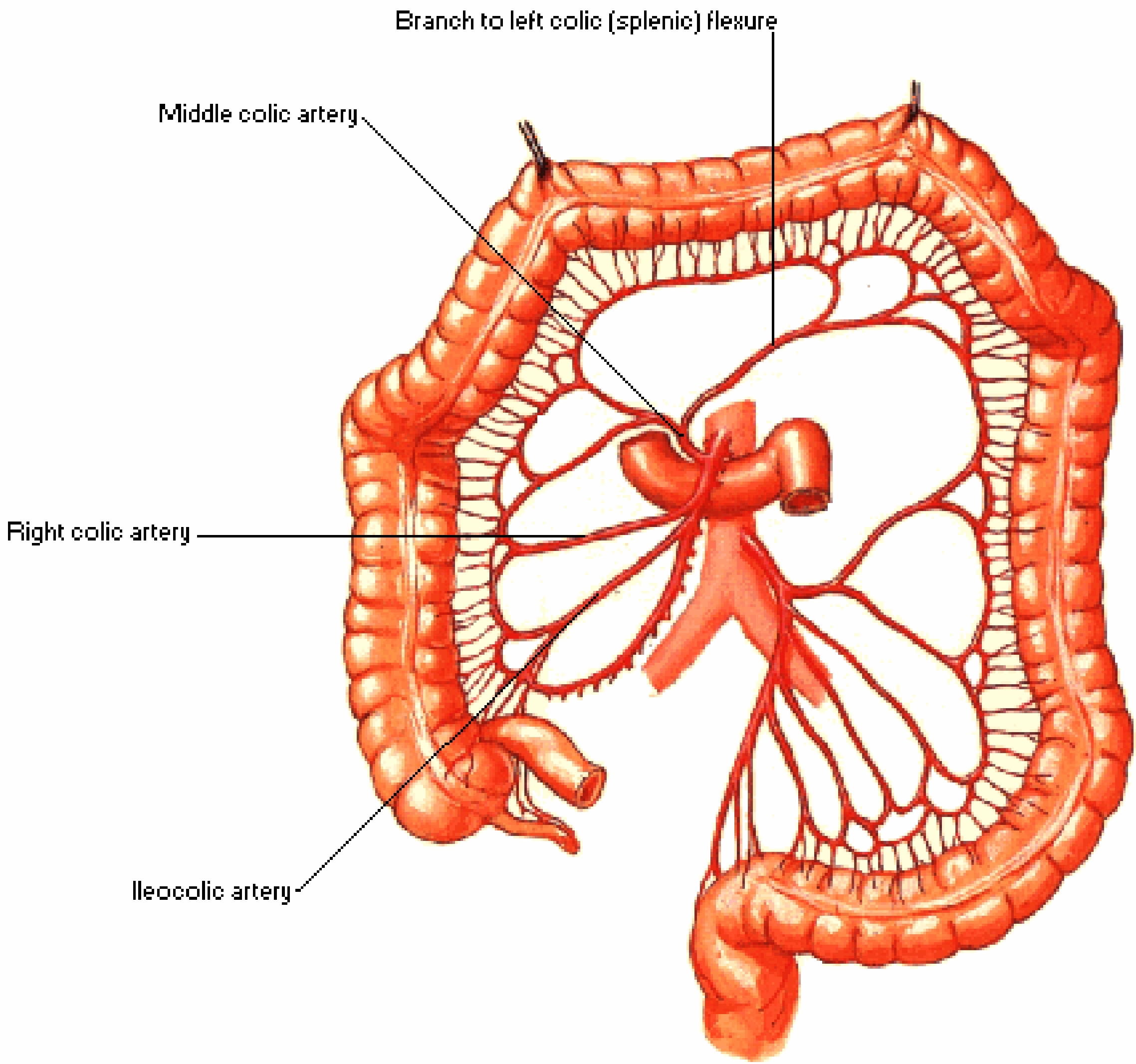
Common origin of right colic and ileocolic arteries



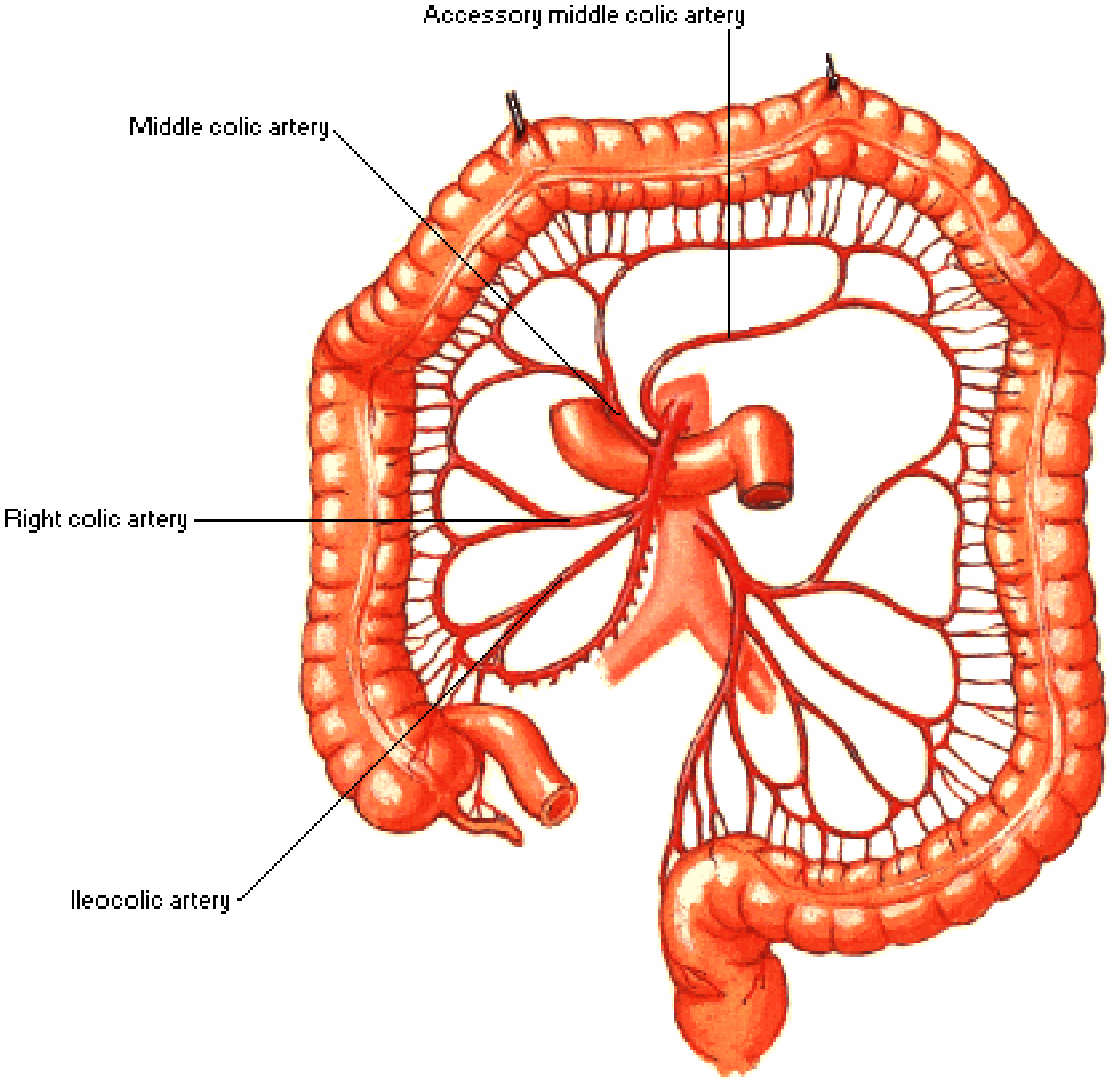
Absence of middle colic artery replaced by large branch from left colic artery



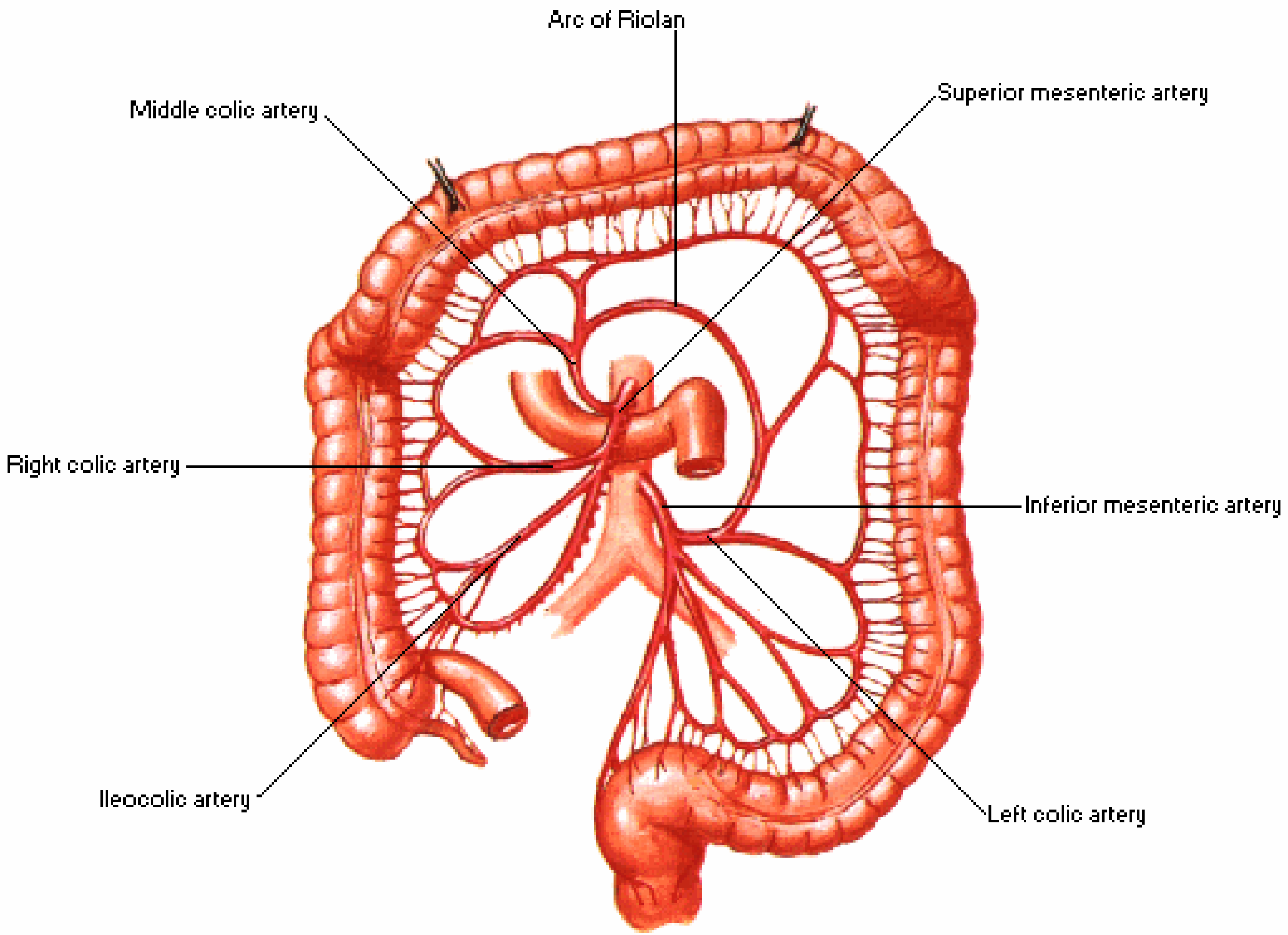
Absence of right colic artery



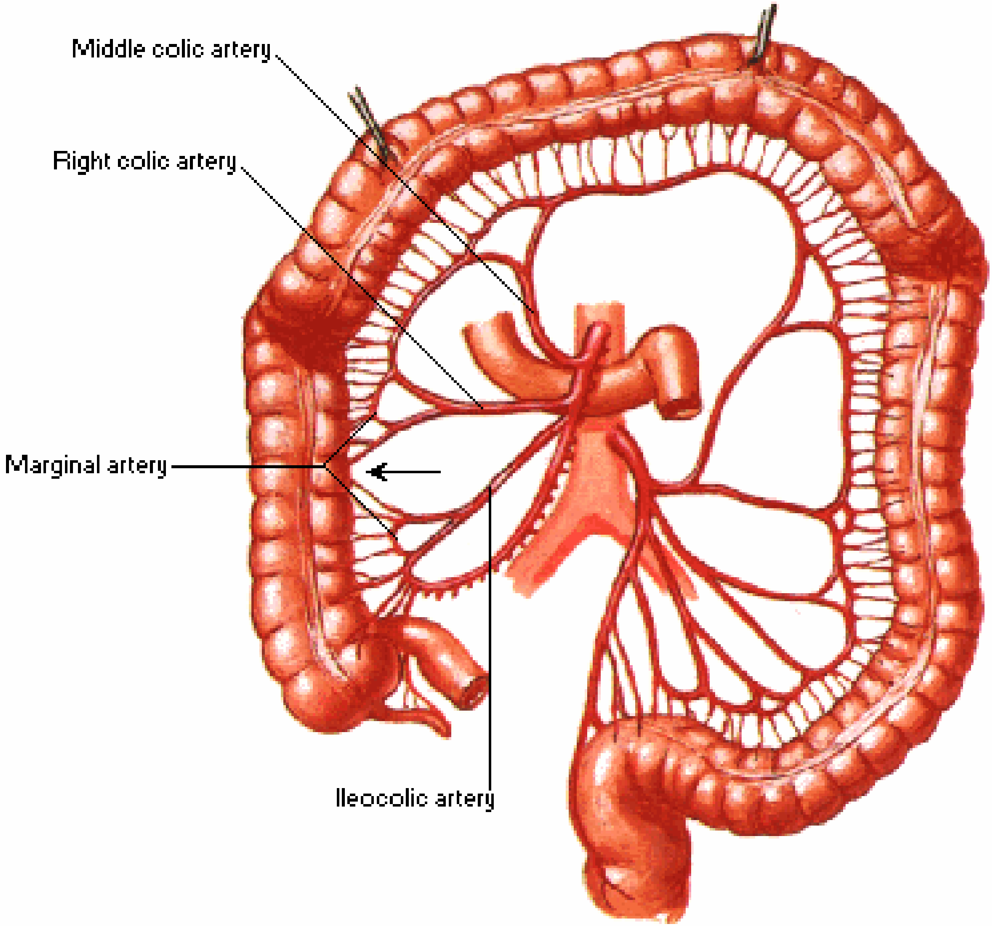
Branch from middle colic artery to left colic (splenic) flexure



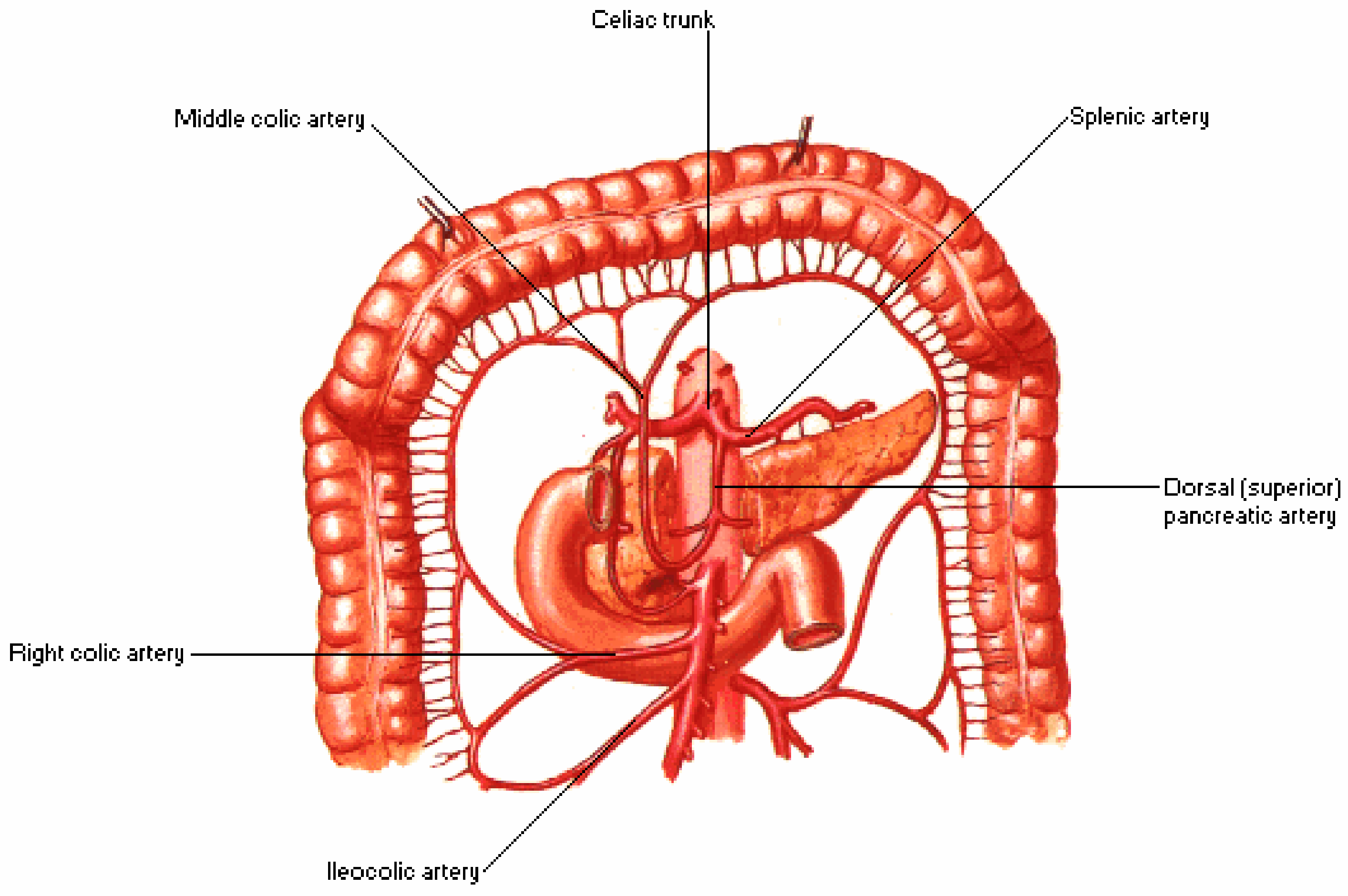
Accessory middle colic artery to left colic (splenic) flexure



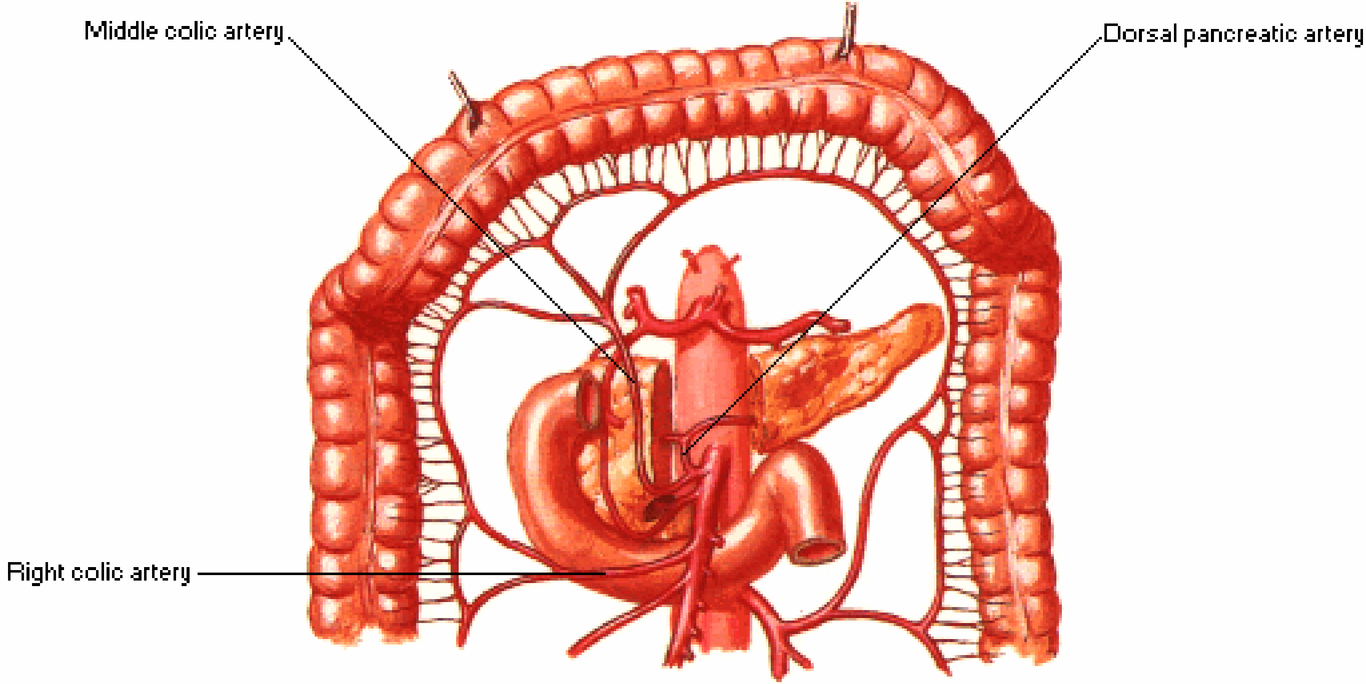
Arc of Riolan between middle colic artery and left colic artery



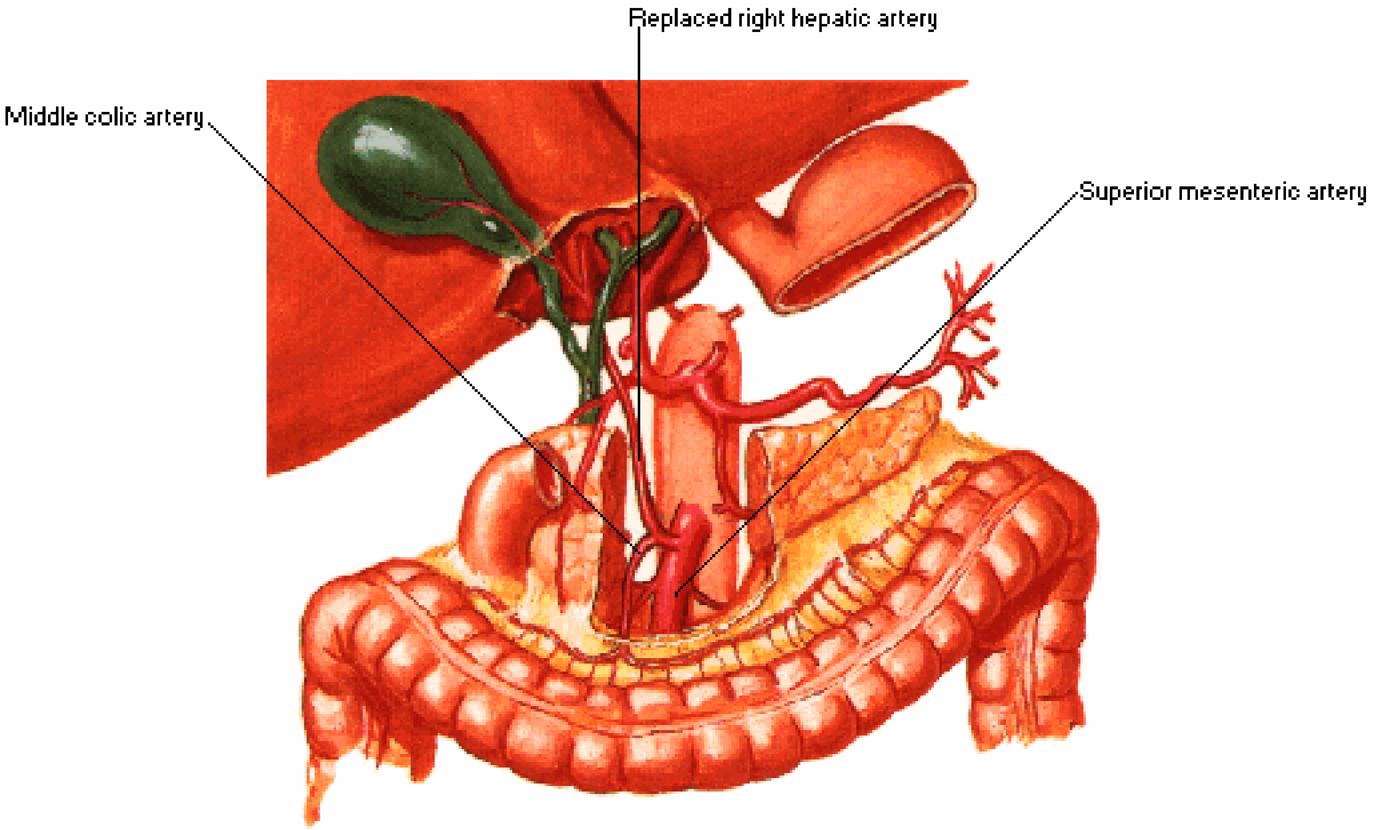
Discontinuity of marginal artery between right colic artery and ileocolic arteries



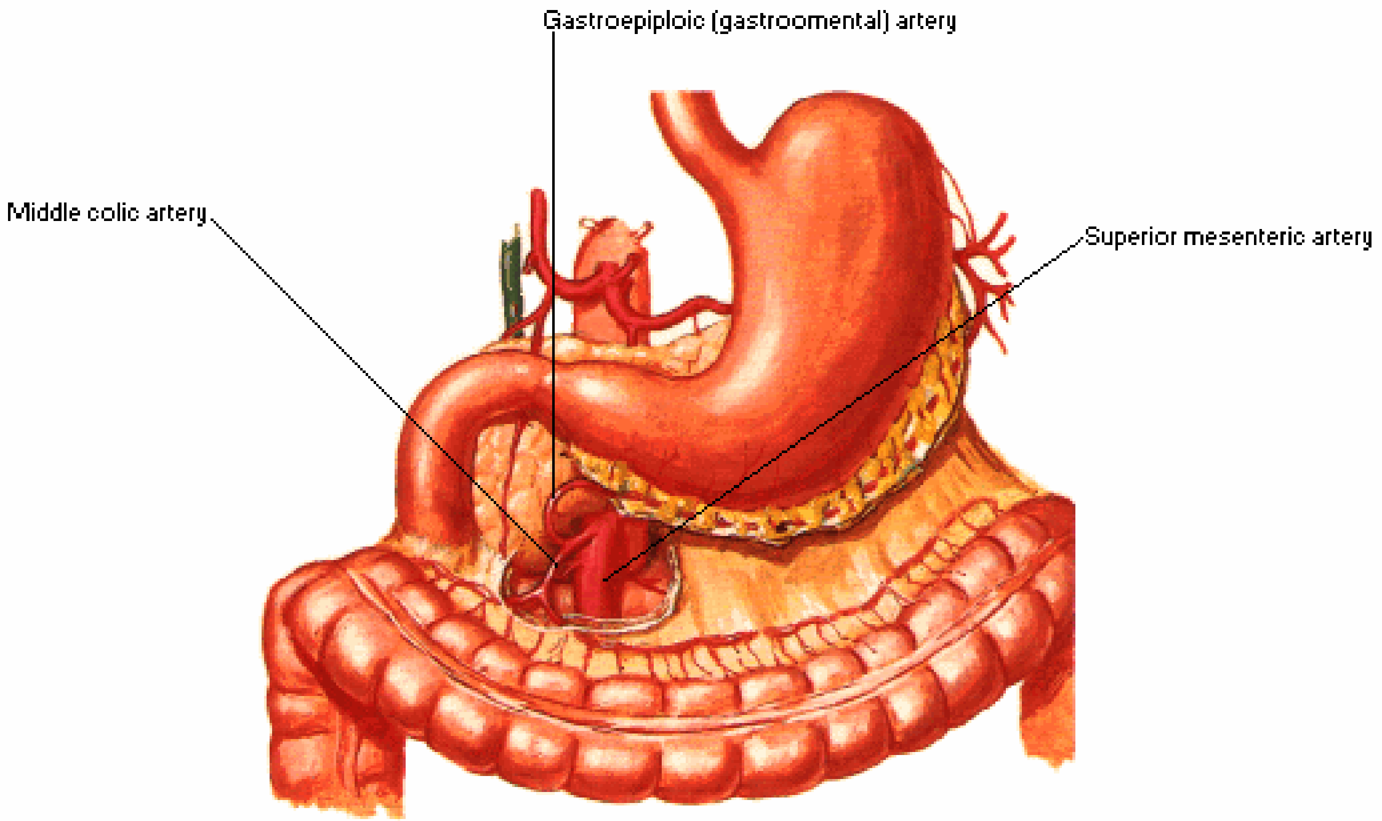
Middle colic artery originates from celiac trunk via dorsal pancreatic artery



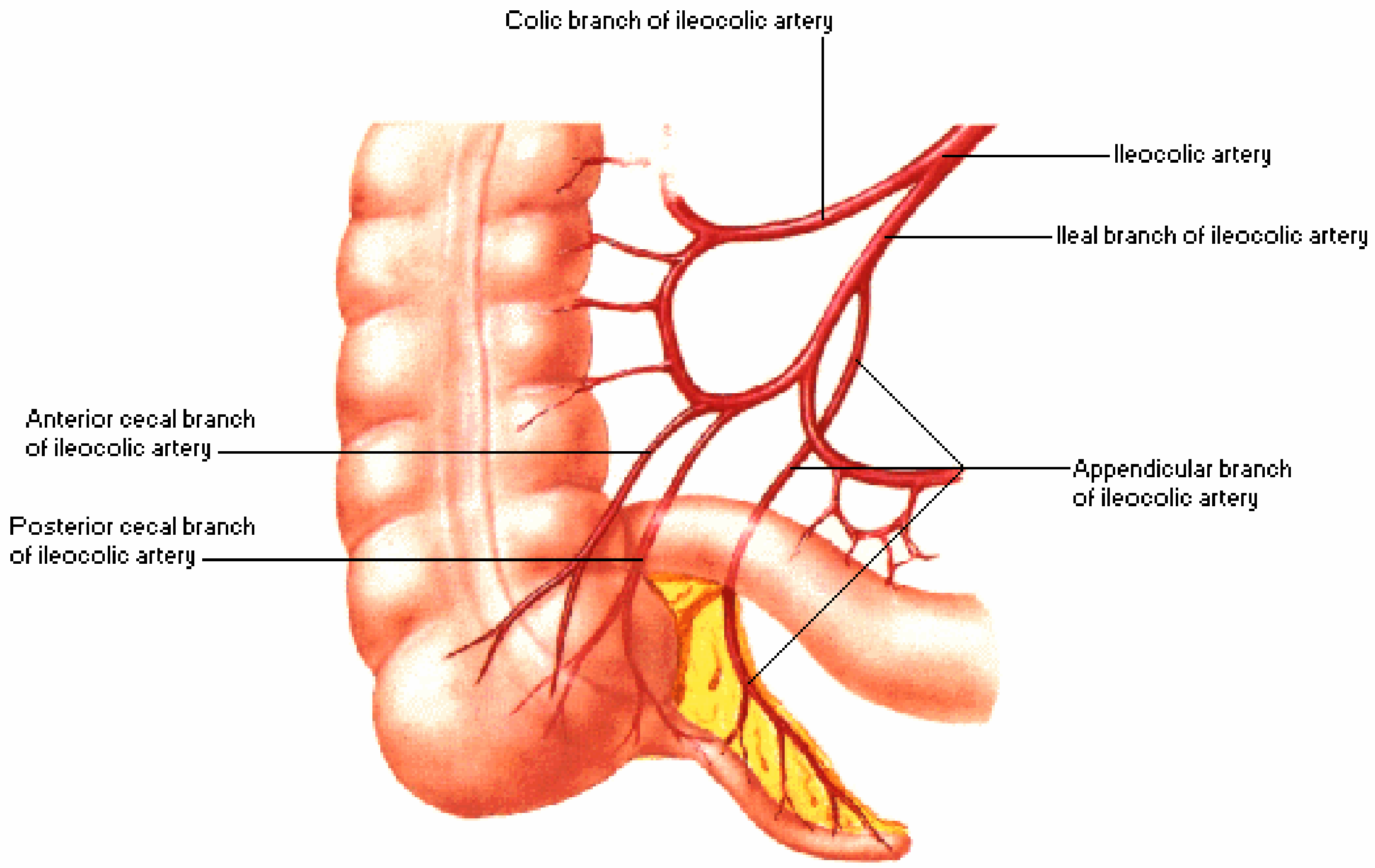
Middle colic artery gives origin to dorsal pancreatic artery



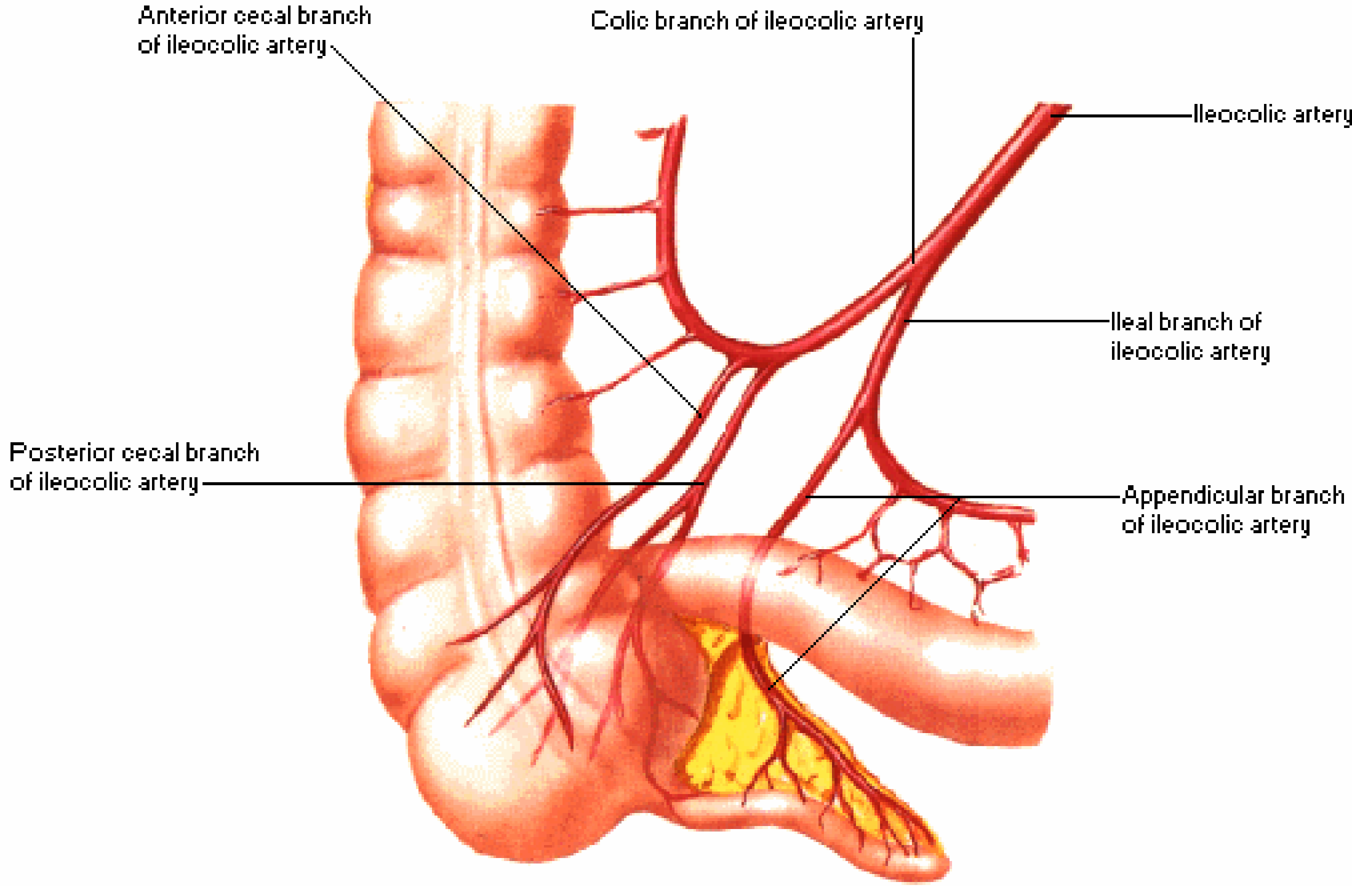
Middle colic artery originates from or with replaced right hepatic artery (from superior mesenteric artery)



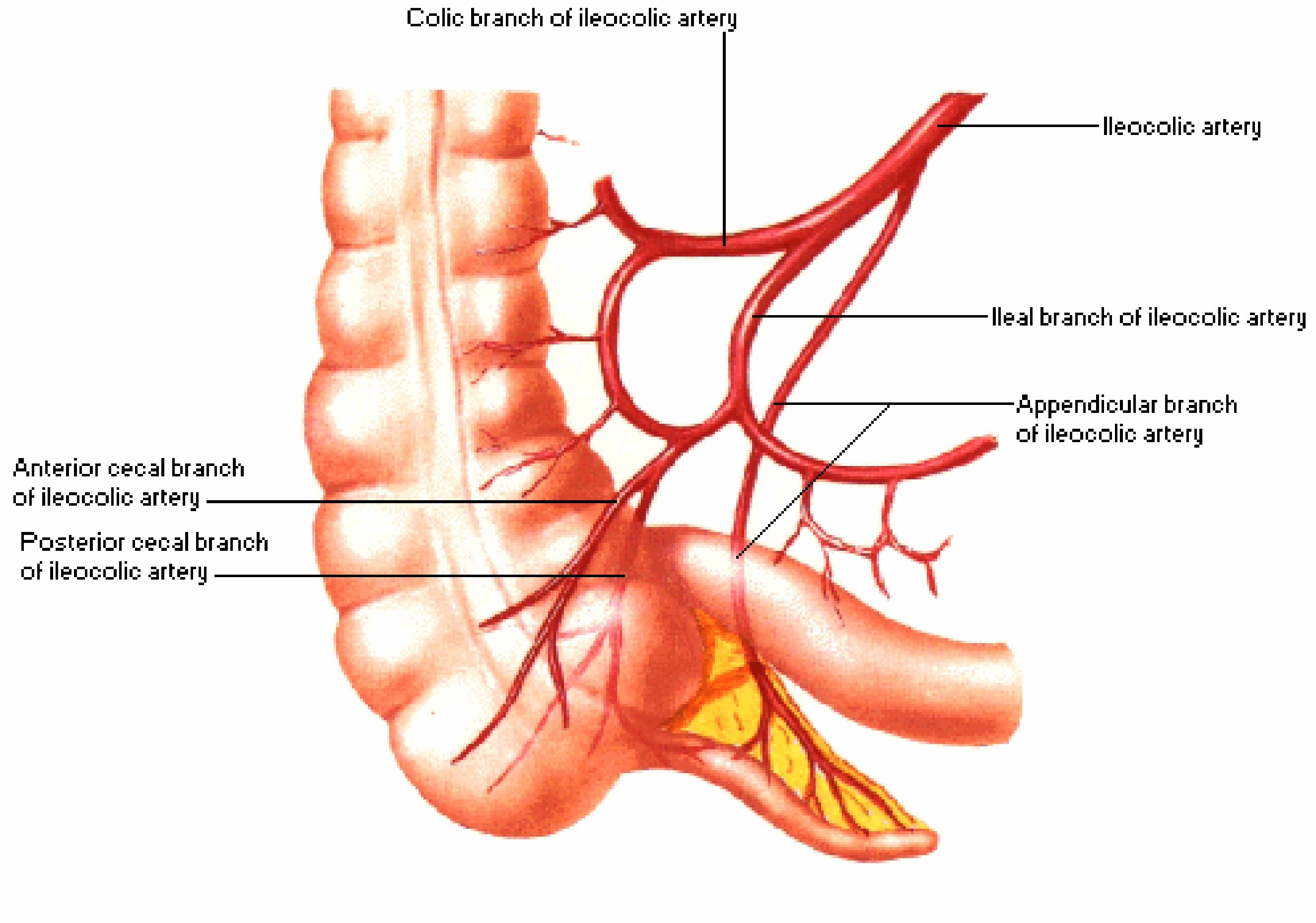
Middle colic artery has common origin with right gastroepiploic (gastroomental) artery from superior mesenteric artery



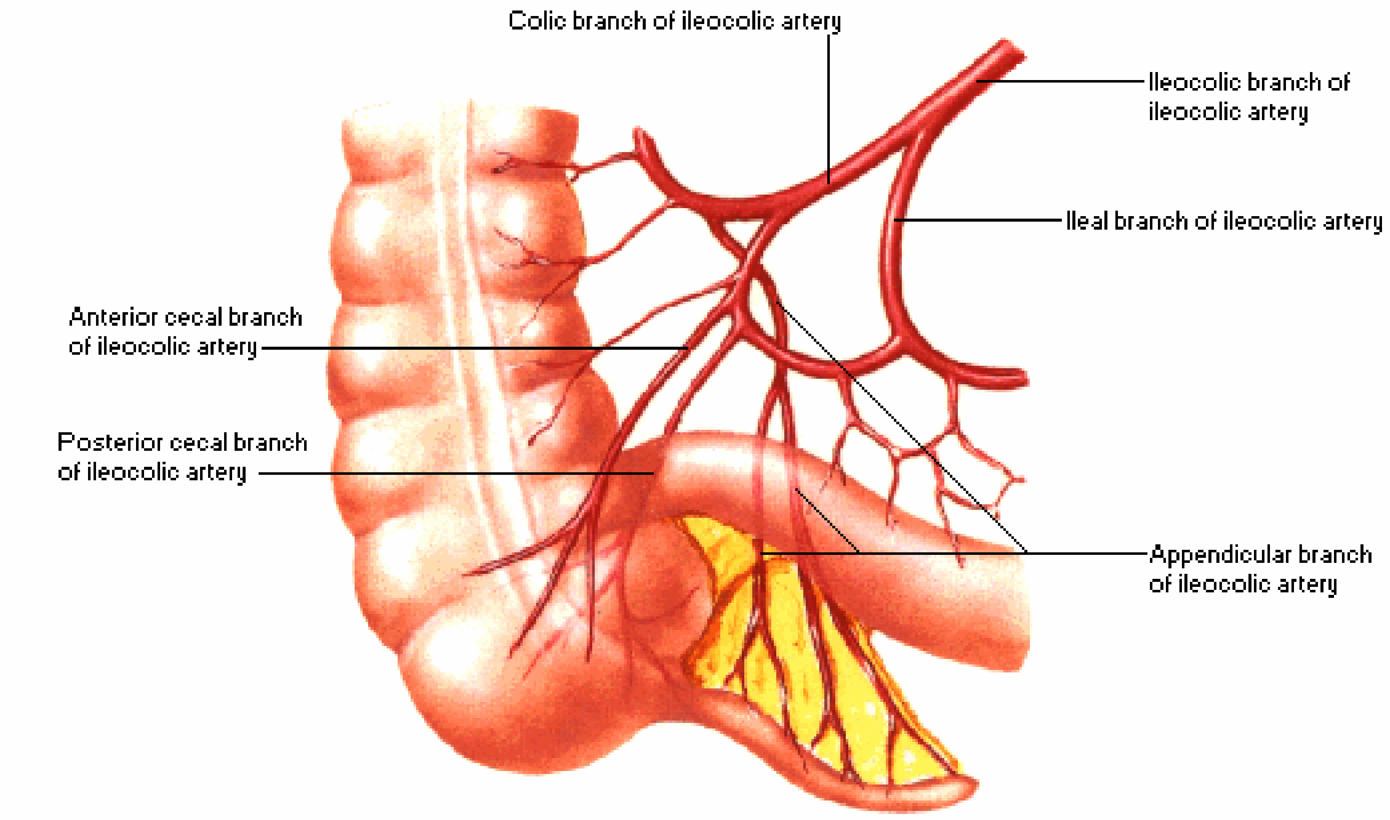
Anterior cecal and posterior cecal arteries originate from arcade between colic and ileal branches of ileocolic; appendicular artery from ileal branch



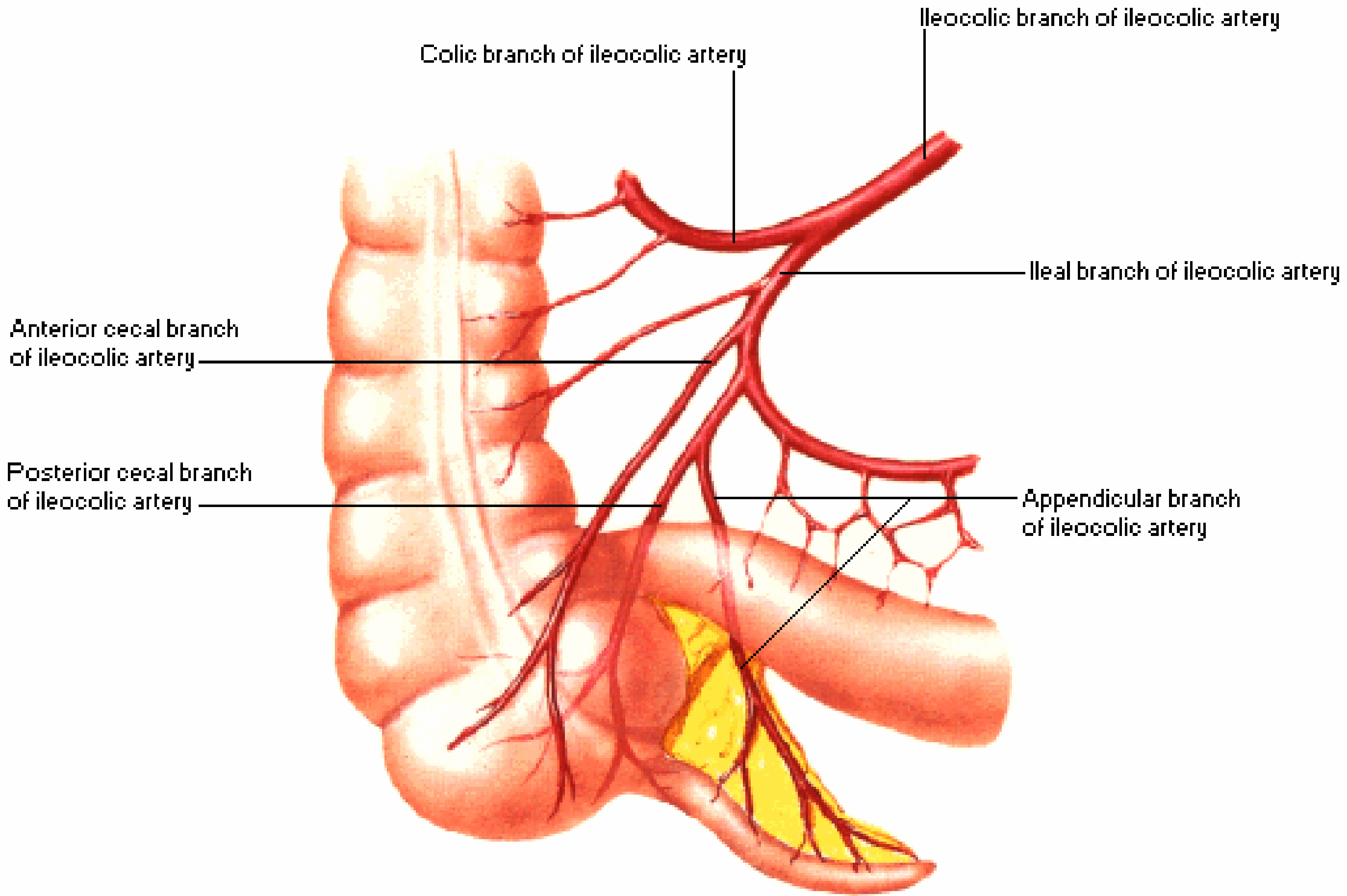
Anterior cecal and posterior cecal arteries originate from colic branch; appendicular artery from ileal branch of ileocolic artery



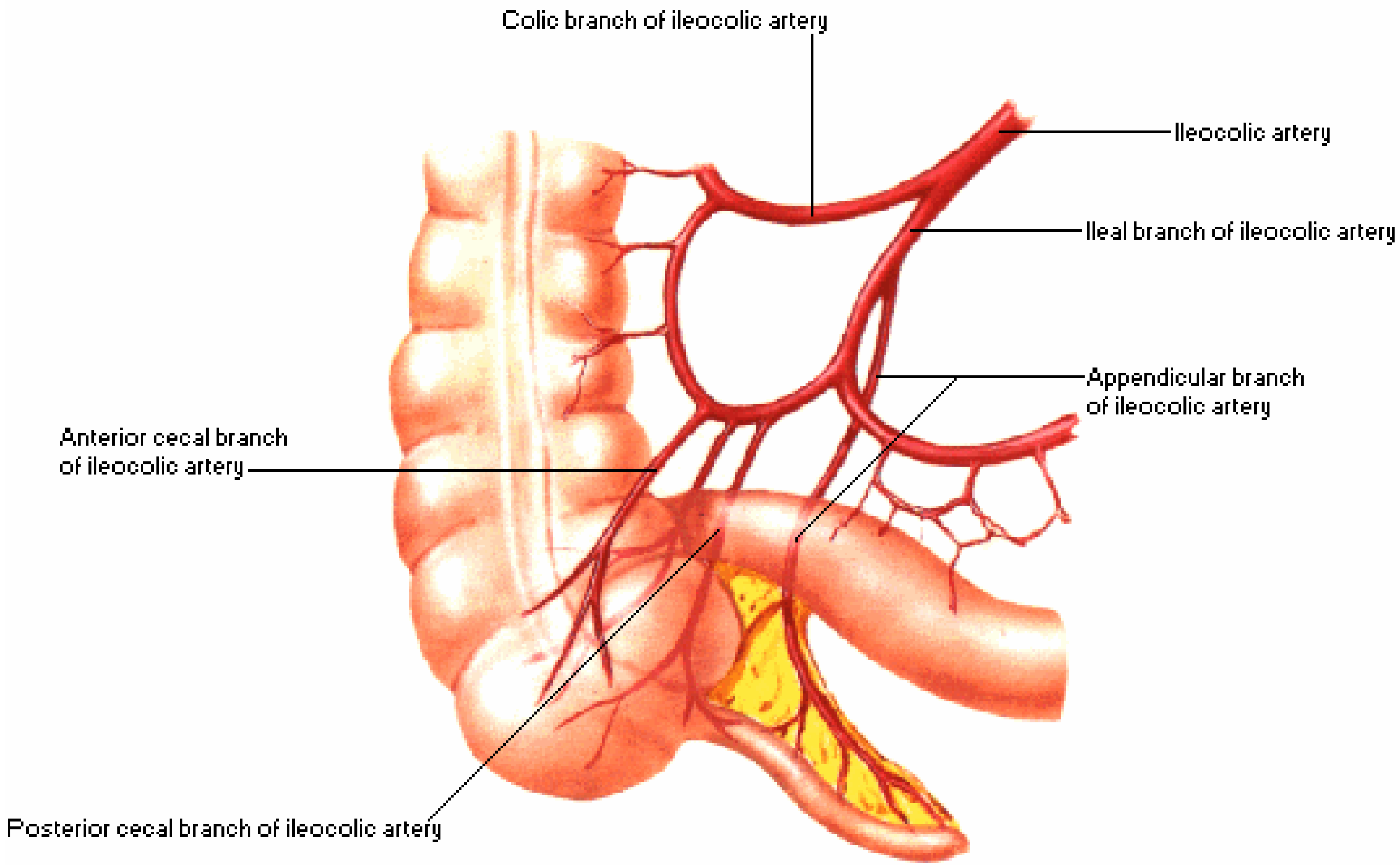
Anterior cecal and posterior cecal arteries have common origin from arcade; appendicular artery from ileocolic artery proper



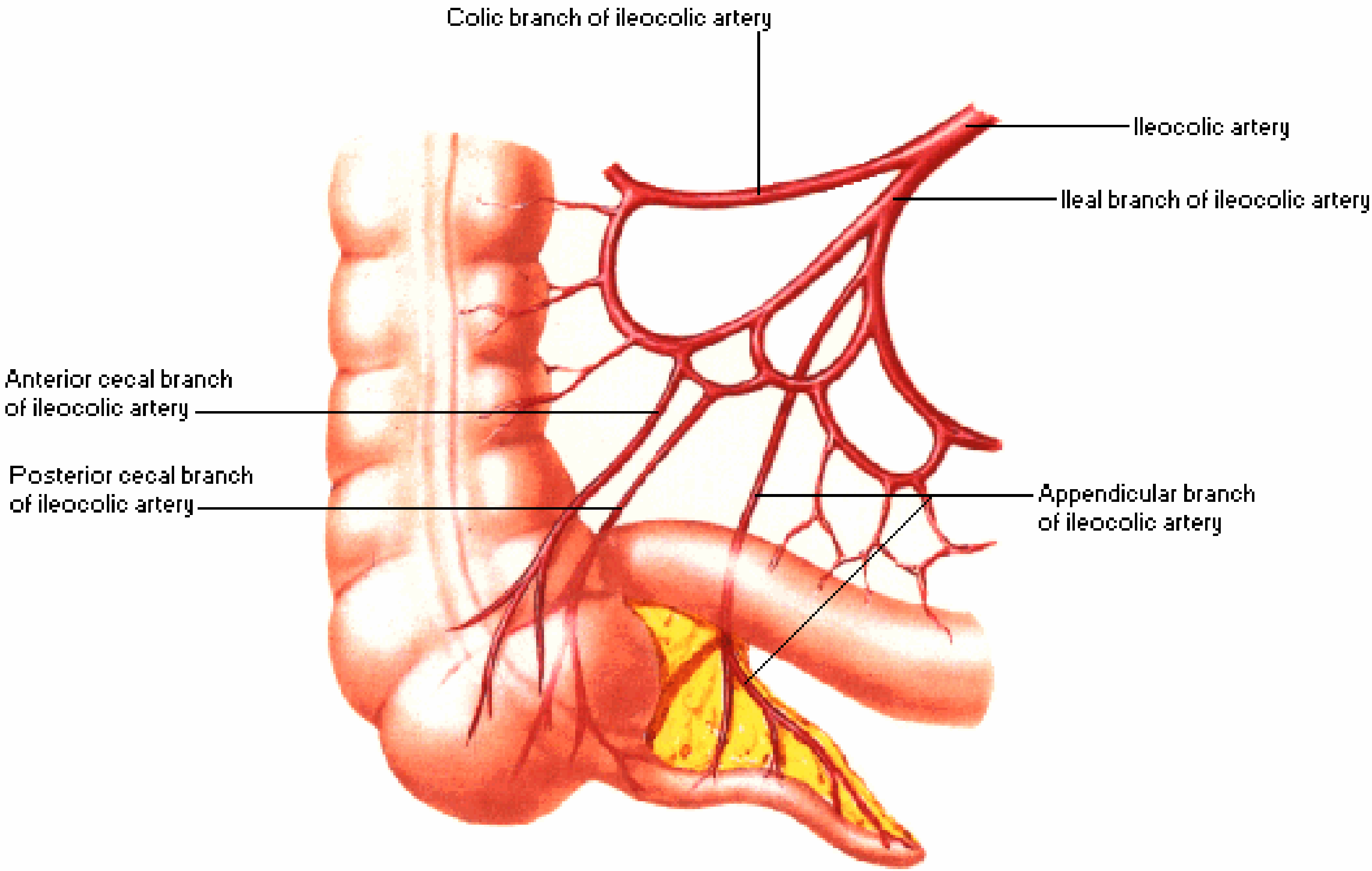
Anterior cecal and posterior cecal arteries originate from arcade between colic and ileal branches of ileocolic artery; appendicular artery from colic branch bifurcates high



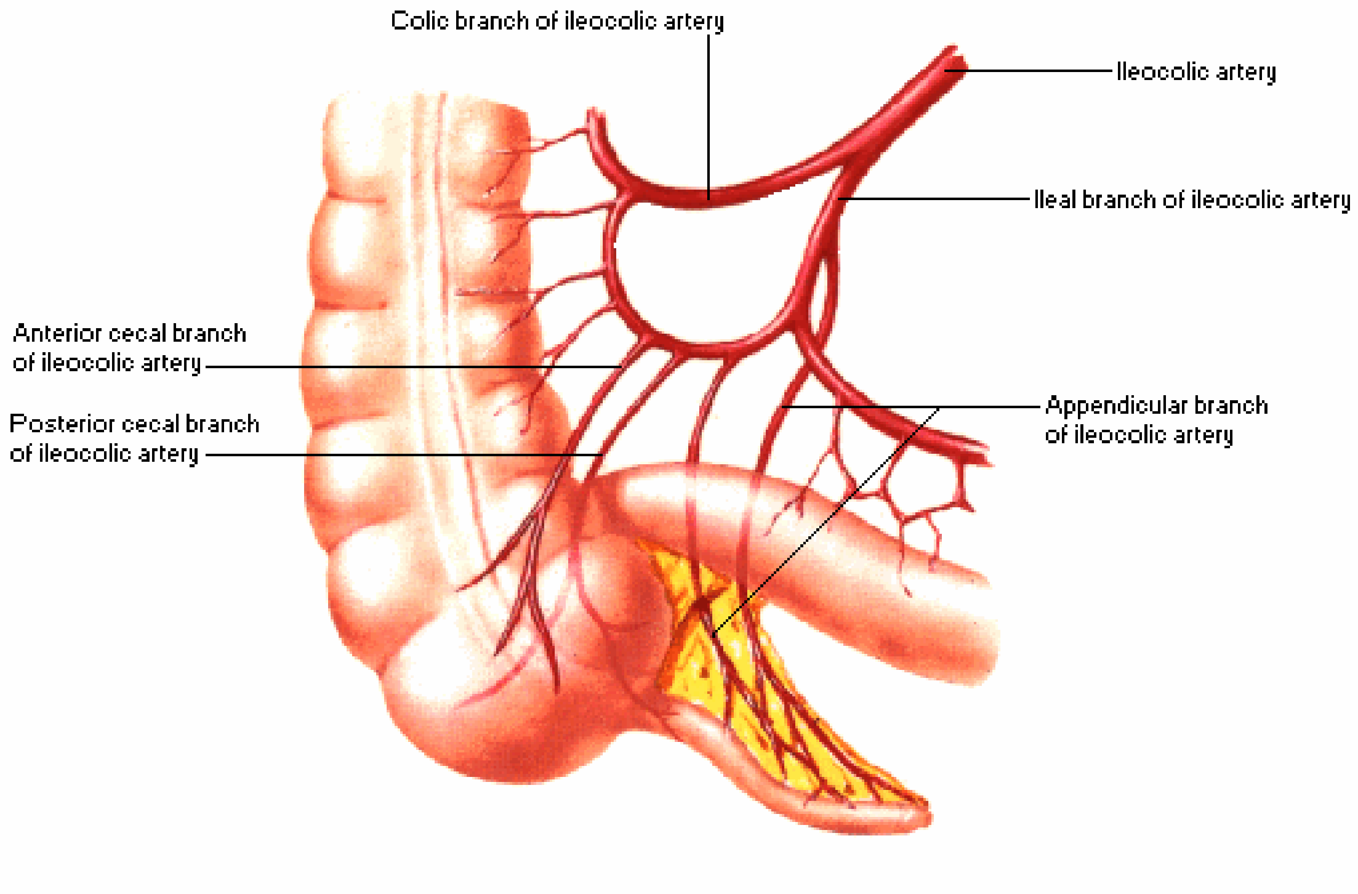
Anterior cecal and posterior cecal arteries originate from ileal branch of ileocolic artery; appendicular artery from posterior cecal artery



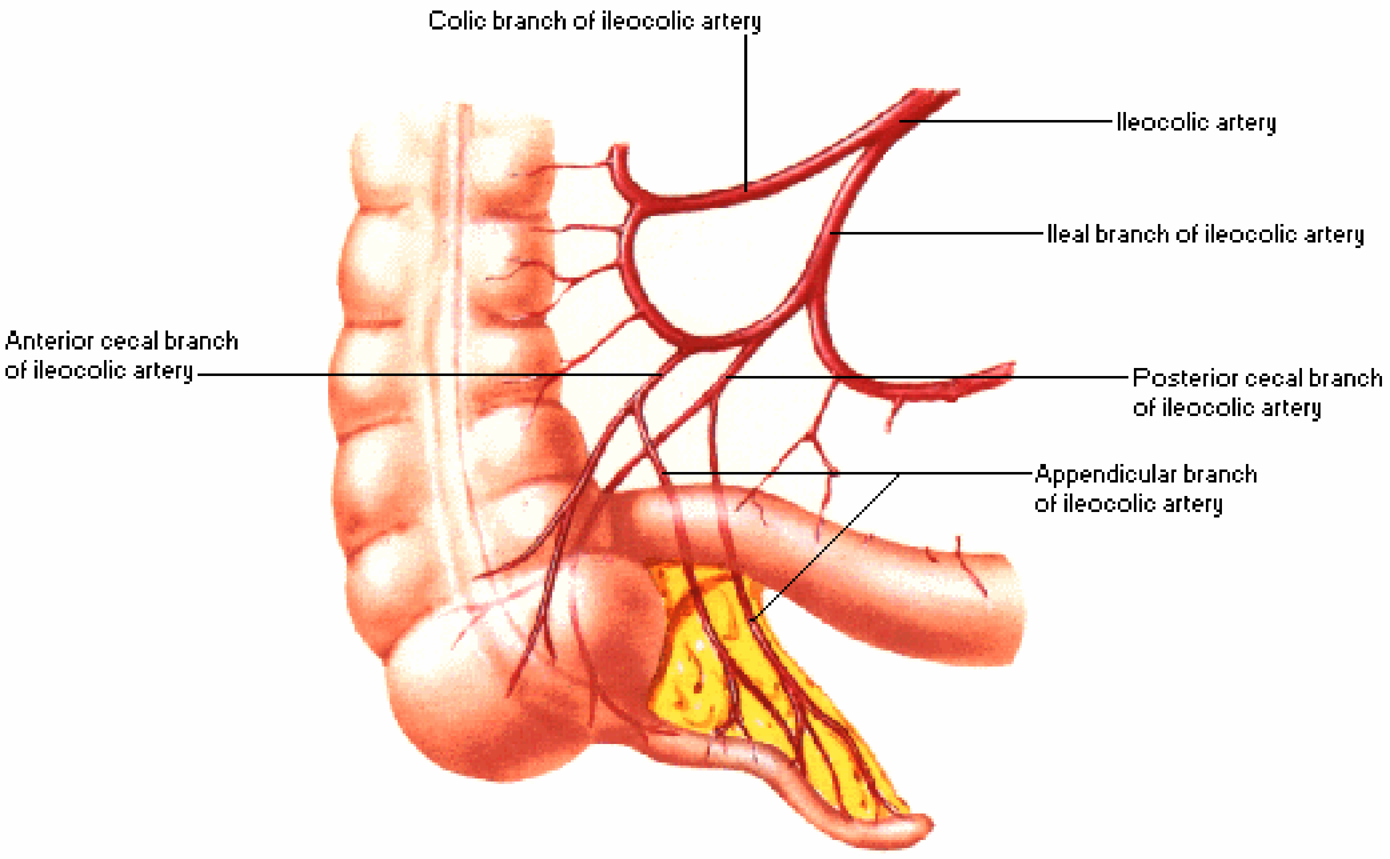
Anterior cecal and two posterior cecal arteries originate from arcade; appendicular artery from ileal branch of ileocolic artery



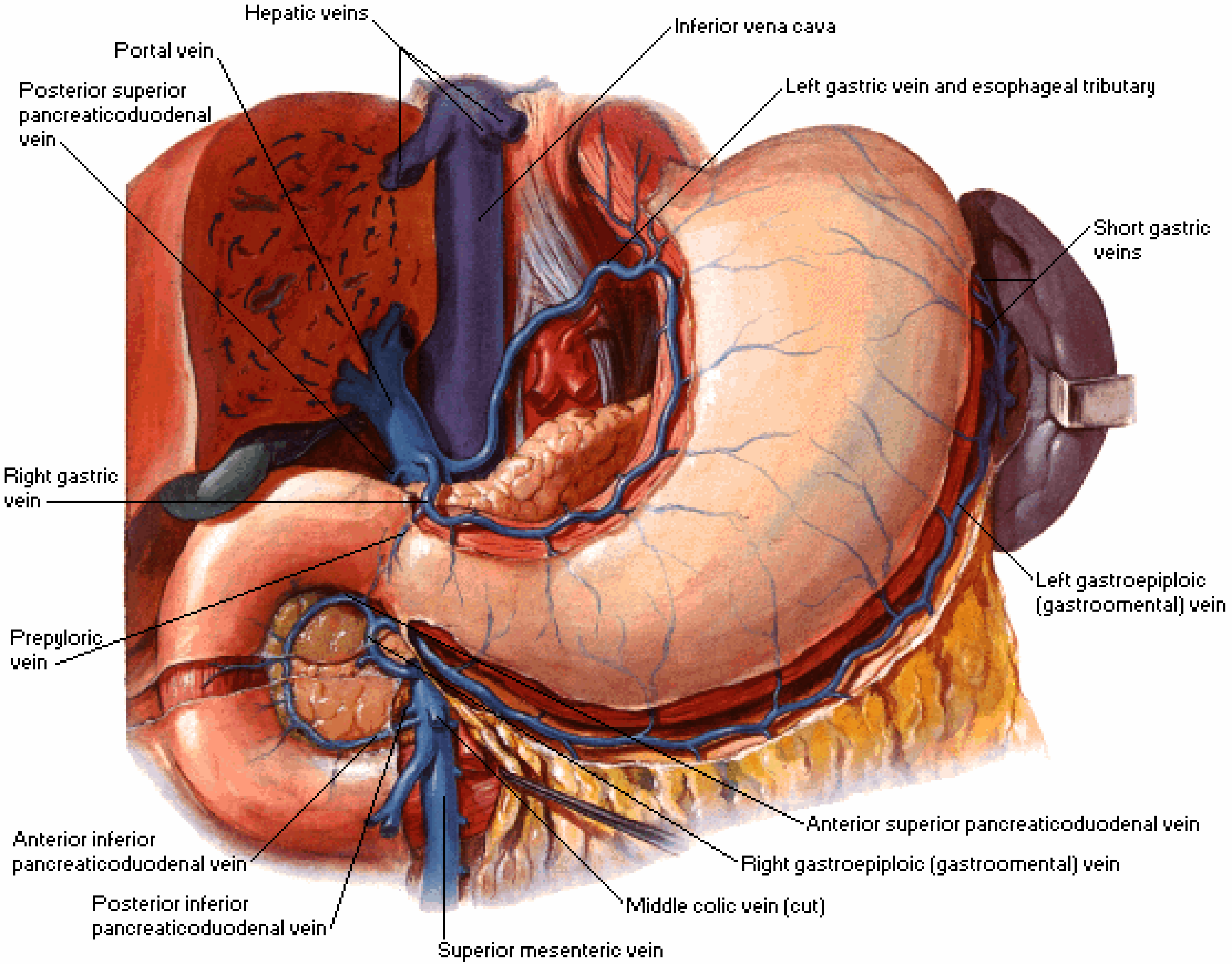
Multiple arcades between ileal branch and colic branch of ileocolic artery; anterior cecal and posterior cecal arteries originate from these arcades; appendicular artery from ileal branch of ileocolic artery

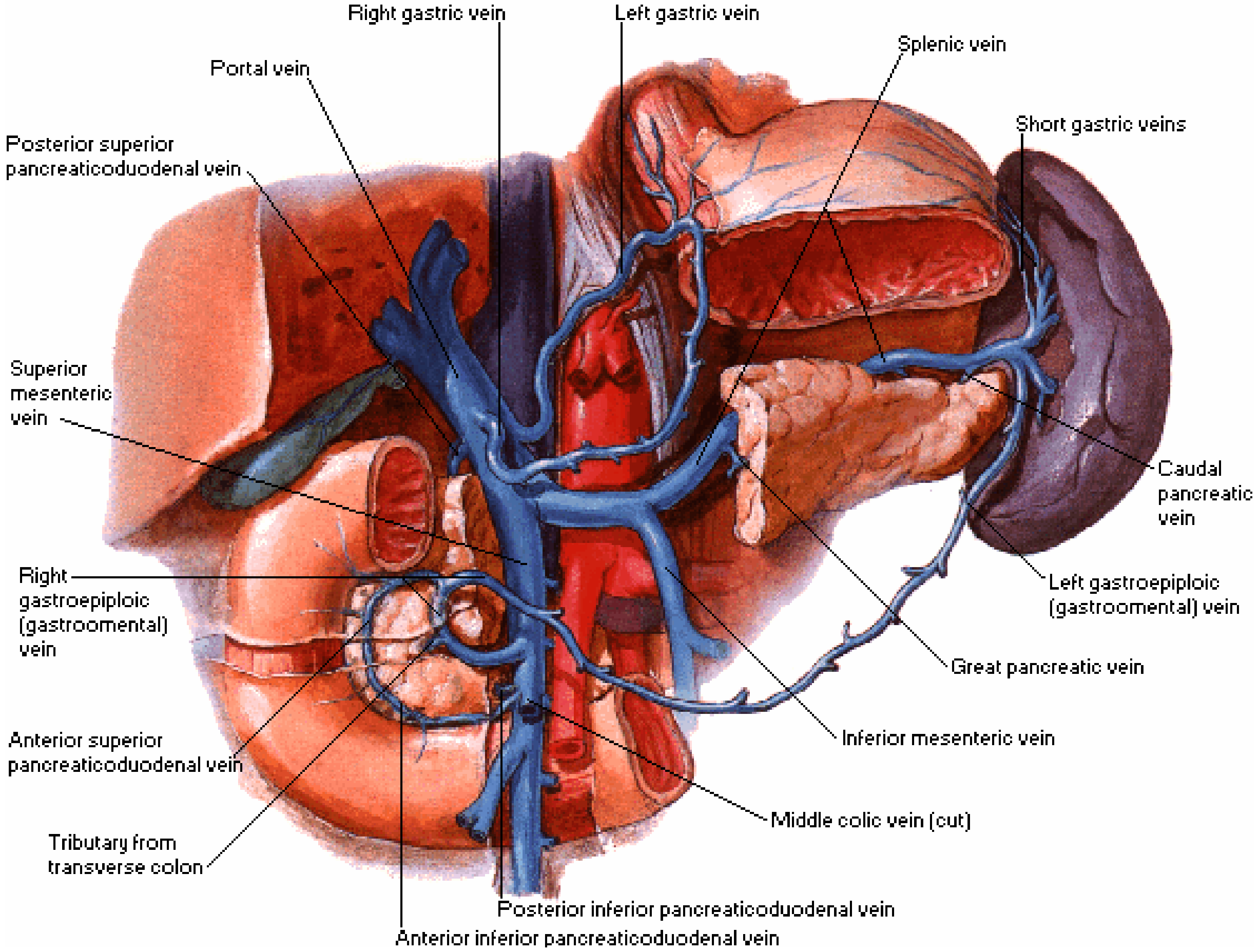


Anterior cecal and posterior cecal arteries originate from arcade between colic and ileal branches of ileocolic artery; two appendicular arteries, one from arcade, one from ileal branch of ileocolic artery



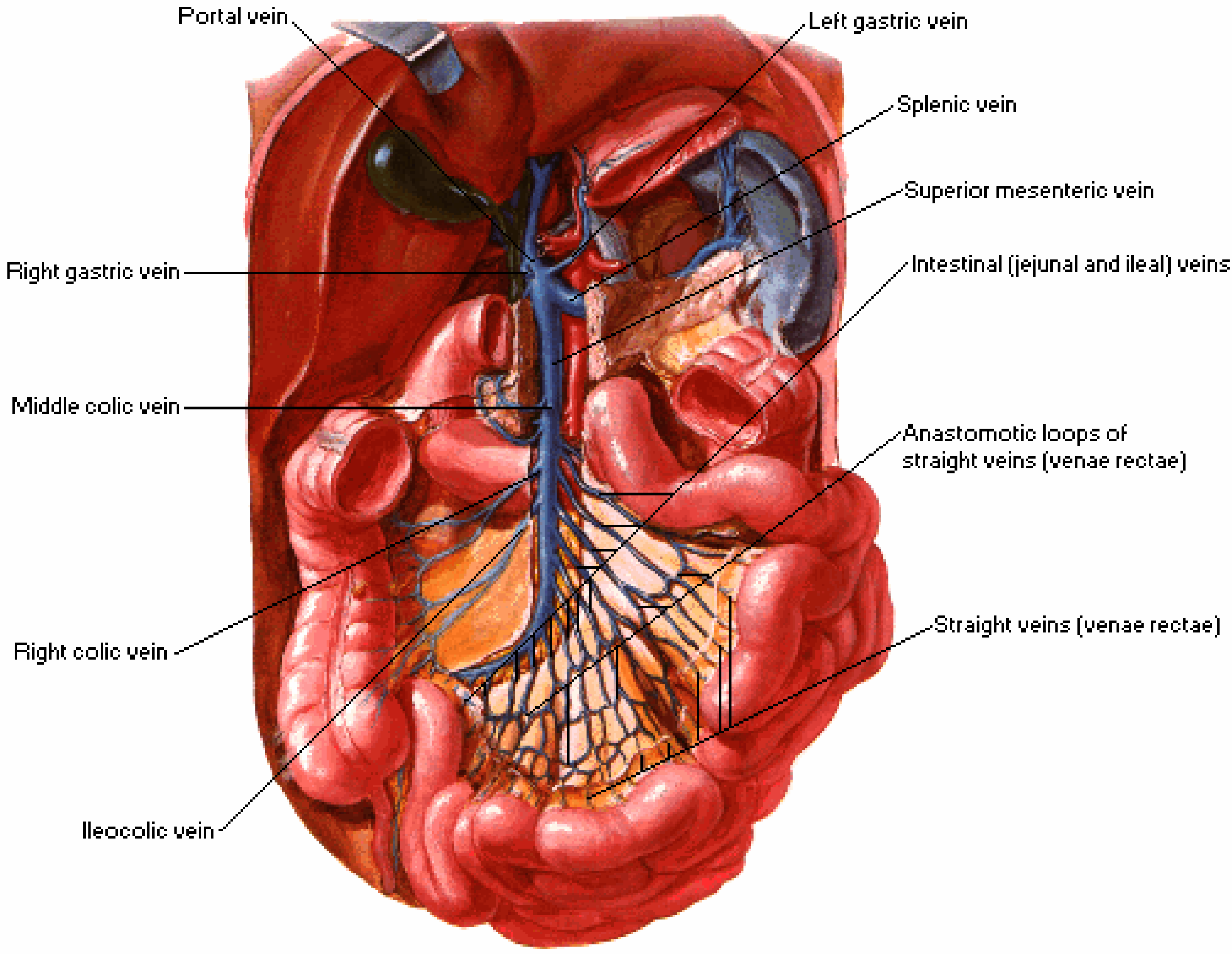
Anterior cecal and posterior cecal arteries originate from arcade; two appendicular arteries, one from anterior cecal, other from posterior cecal artery


Hepatic veins
Inferior vena cava
Portal vein
Left gastric vein and esophageal tributary
Posterior superior pancreaticoduodenal vein
Short gastric veins
Right gastric vein
Left gastroepiploic (gastroomental) vein
Prepyloric vein
Anterior superior pancreaticoduodenal vein
Anterior inferior pancreaticoduodenal vein
Right gastroepiploic (gastroomental) vein
Middle colic vein (cut)
Posterior inferior pancreaticoduodenal vein
Superior mesenteric vein

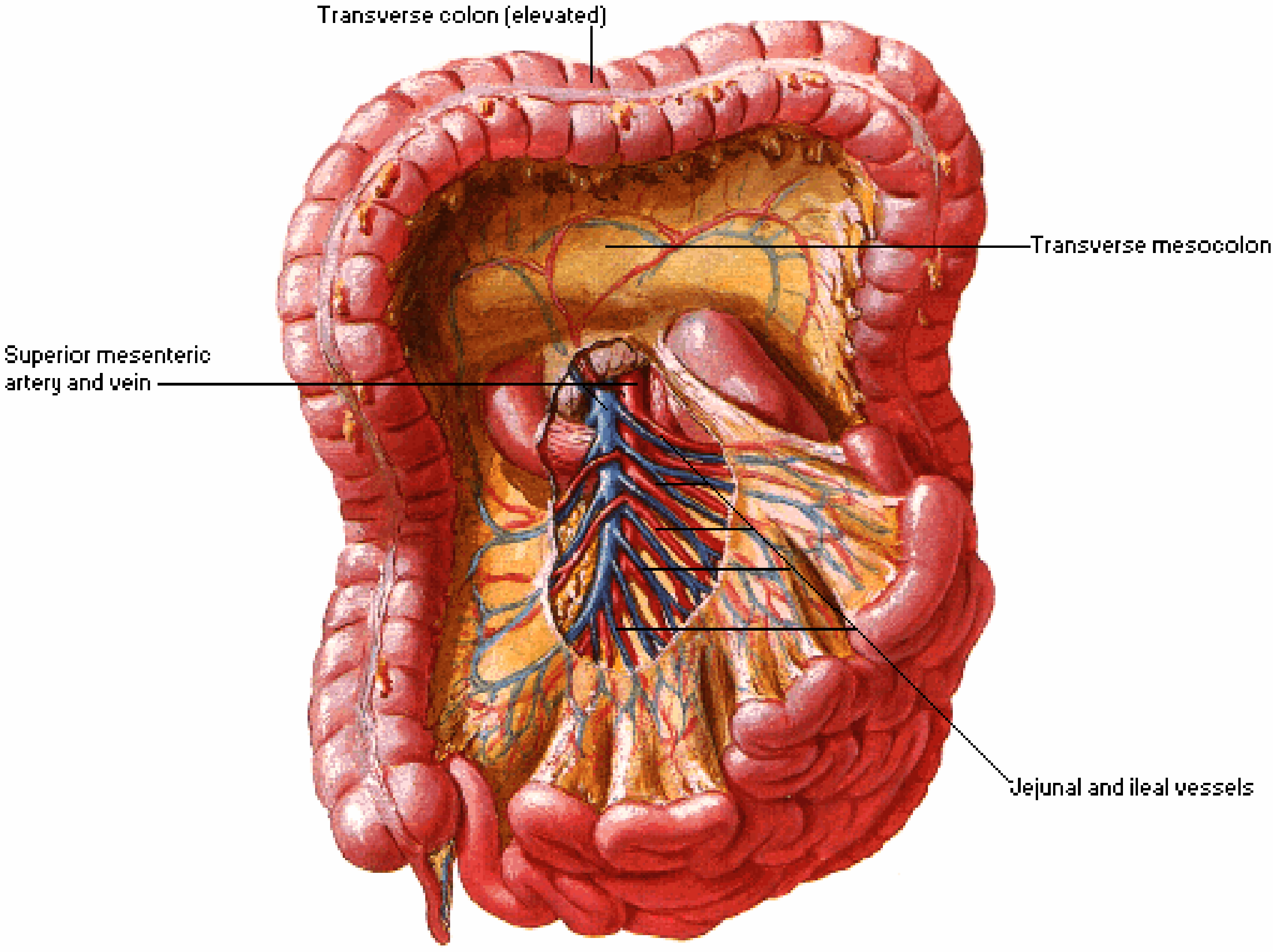


Right gastric vein
Left gastric vein
Splenic vein
Portal vein
Short gastric veins
Posterior superior pancreaticoduodenal vein
Superior mesenteric vein
Caudal pancreatic vein
Right gastroepiploic (gastroomental) vein
Left gastroepiploic (gastroomental) vein
Great pancreatic vein
Inferior mesenteric vein
Anterior superior pancreaticoduodenal vein
Middle colic vein (cut)
Tributary from transverse colon
Posterior inferior pancreaticoduodenal vein
Anterior inferior pancreaticoduodenal vein

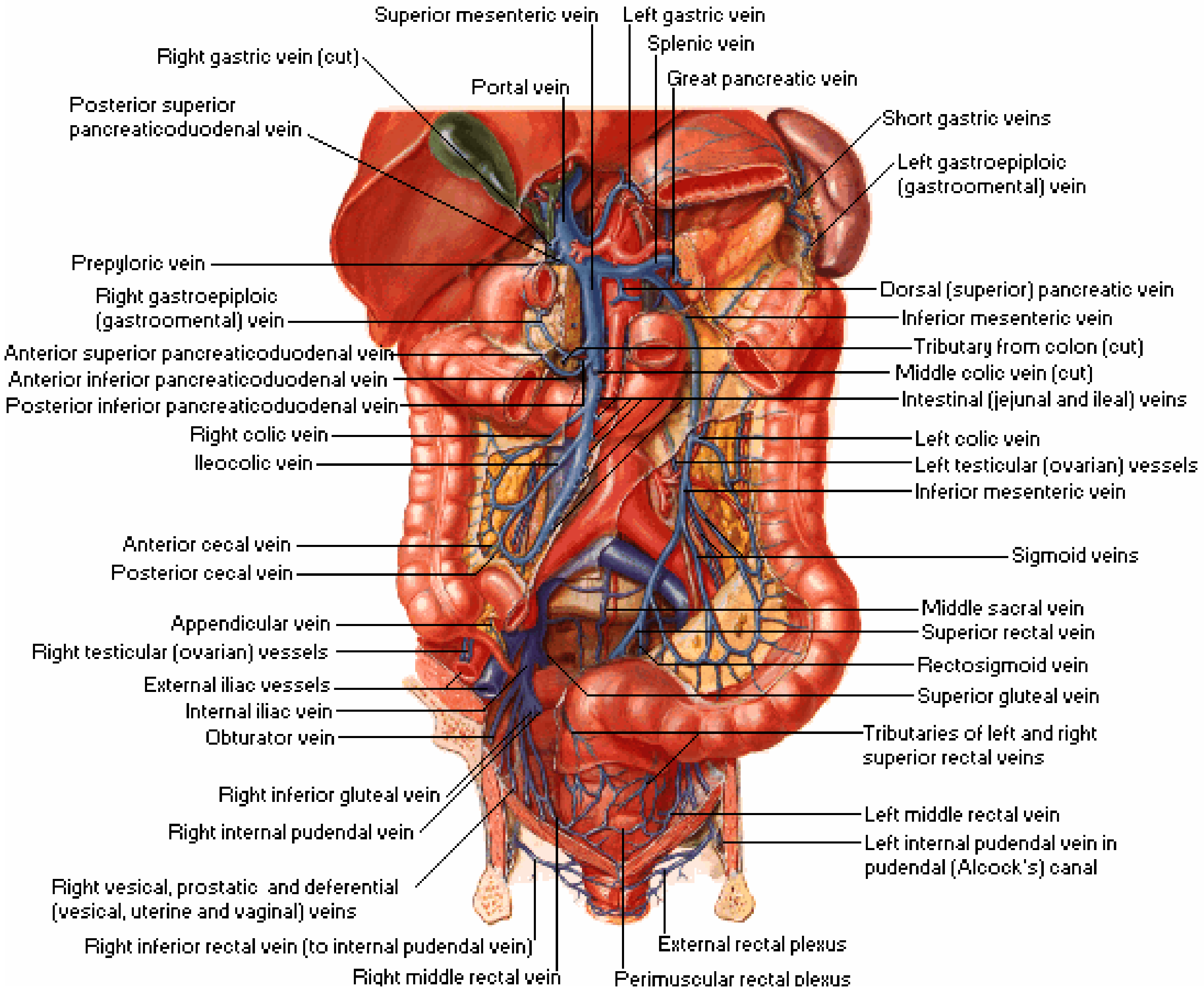
Transverse Colon Cut



Transverse Colon Elevated

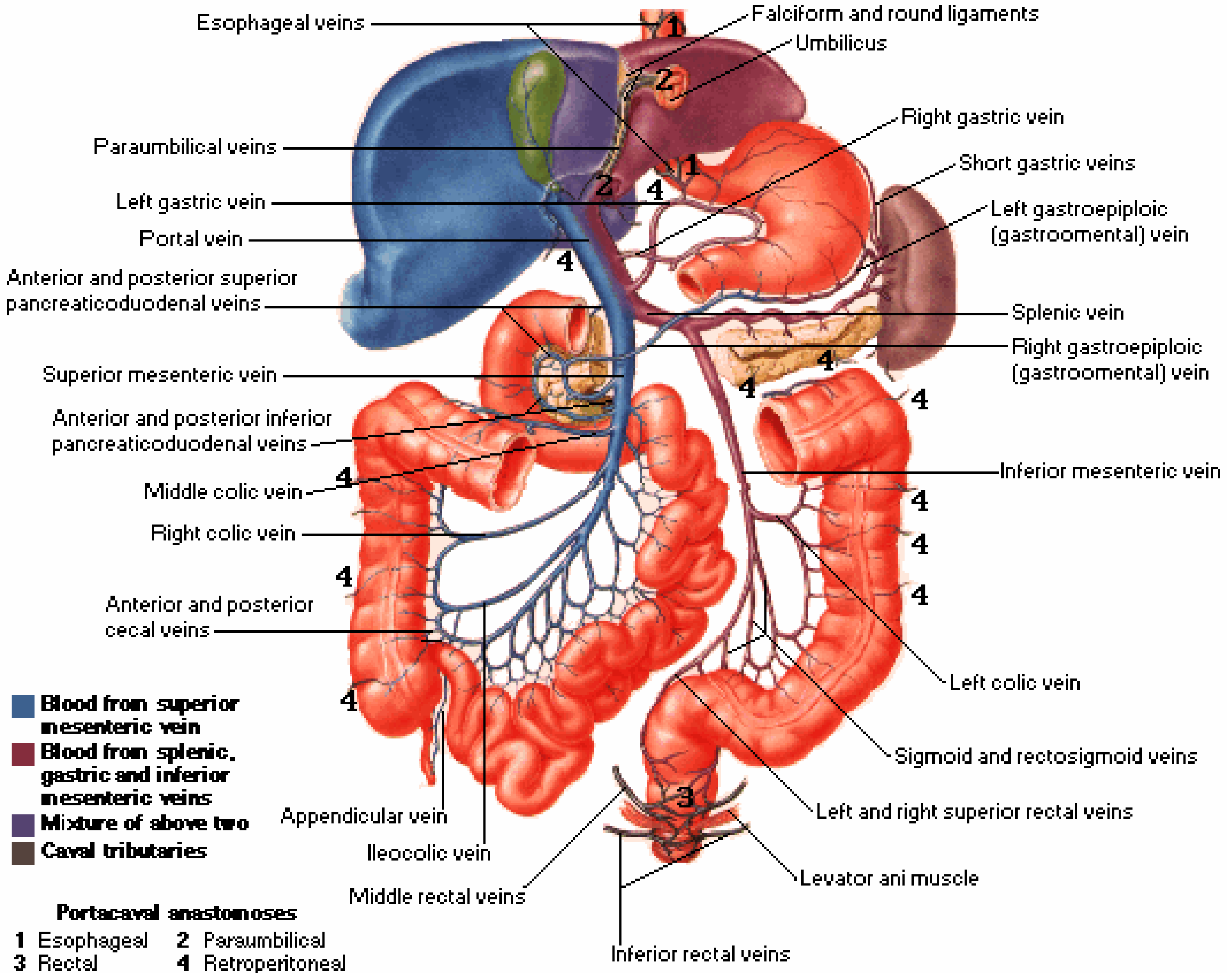


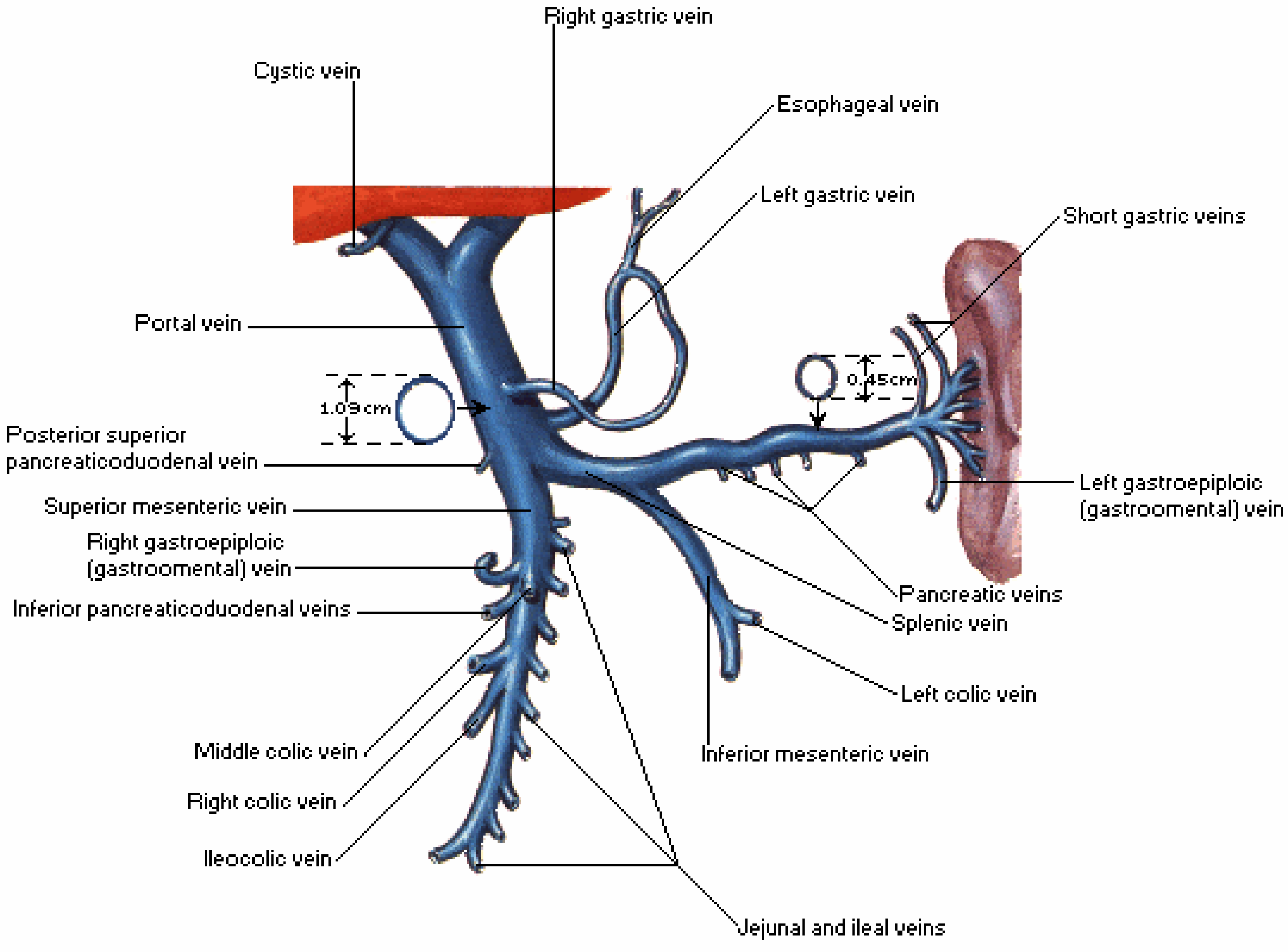
Relations of superior mesenteric vein and artery in root of mesentery



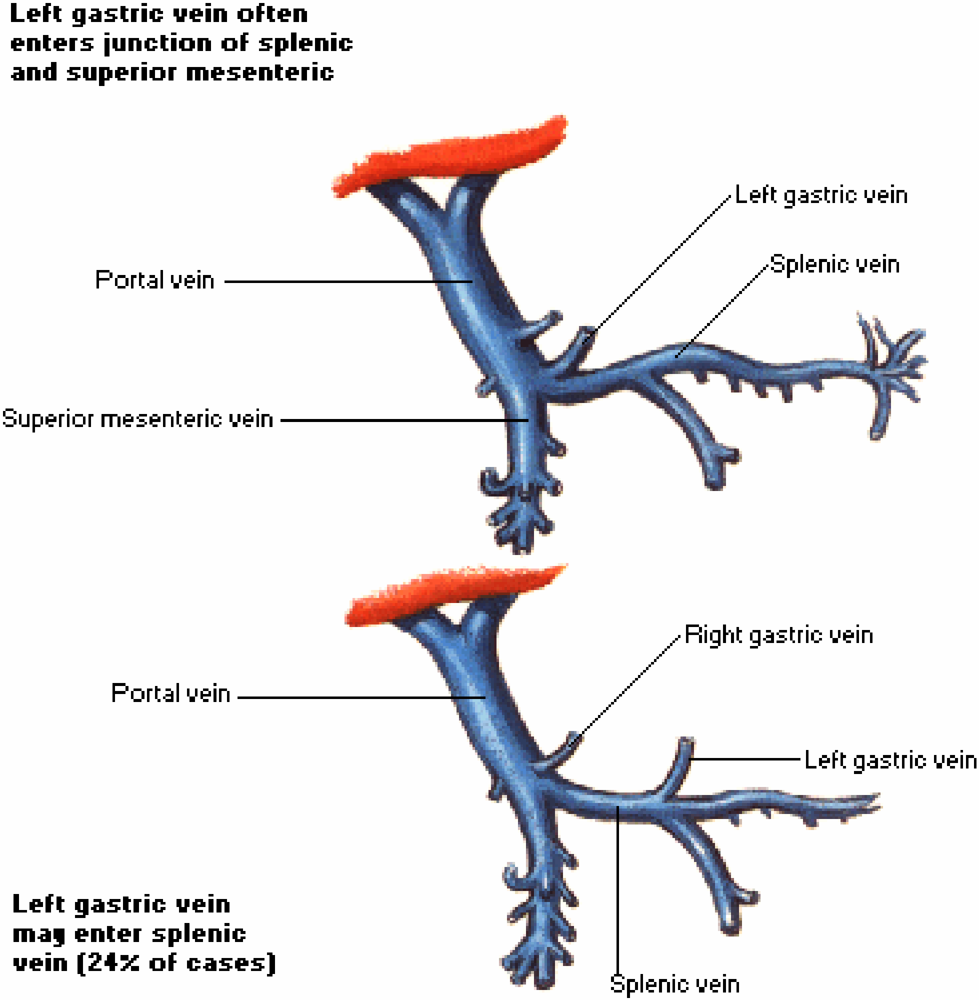
Superior mesenteric vein
Left gastric vein
Splenic vein
Right gastric vein (cut)
Great pancreatic vein
Portal vein
Posterior superior pancreaticoduodenal vein
Short gastric veins
Left gastroepiploic (gastroomental) vein
Prepyloric vein
Dorsal (superior) pancreatic vein
Right gastroepiploic (gastroomental) vein
Inferior mesenteric vein
Anterior superior pancreaticoduodenal vein
Tributary from colon (cut)
Anterior inferior pancreaticoduodenal vein
Middle colic vein (cut)
Posterior inferior pancreaticoduodenal vein
Intestinal (jejunal and ileal) veins
Right colic vein
Left colic vein
Ileocolic vein
Left testicular (ovarian) vessels
Inferior mesenteric vein
Anterior cecal vein
Sigmoid veins
Posterior cecal vein
Middle sacral vein
Appendicular vein
Superior rectal vein
Right testicular (ovarian) vessels
Rectosigmoid vein
External iliac vessels
Superior gluteal vein
Internal iliac vein
Obturator vein
Tributaries of left and right superior rectal veins
Right inferior gluteal vein
Left middle rectal vein
Right internal pudendal vein
Left internal pudendal vein in pudendal (Alcock's) canal
Right vesical, prostatic and deferential (vesical, uterine and vaginal) veins
Right inferior rectal vein (to internal pudendal vein)
External rectal plexus
Right middle rectal vein
Perimuscular rectal plexus

Portacaval Anastomoses

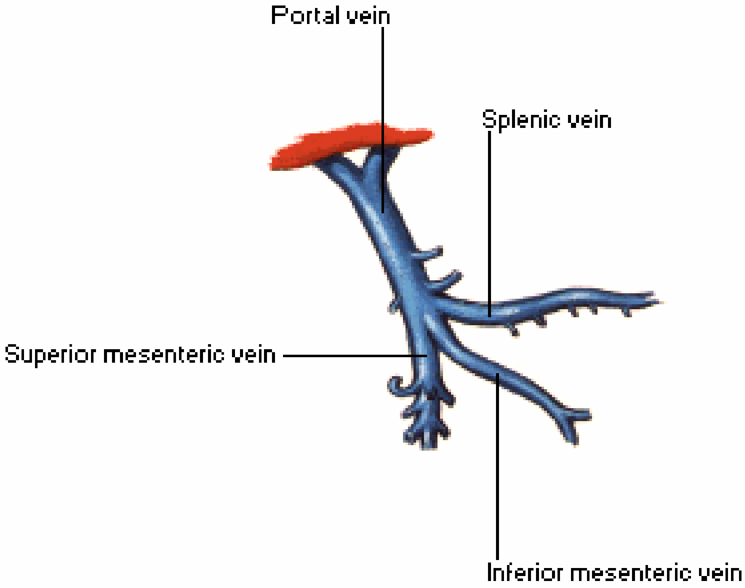




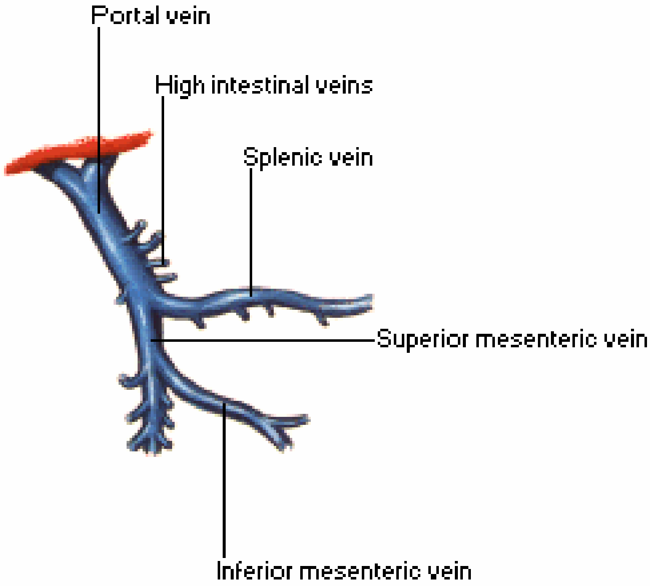
Right gastric vein
Cystic vein
Esophageal vein
Left gastric vein
Short gastric veins
Portal vein
1.09 cm
0.45cm
Posterior superior
pancreaticoduodenal vein
Left gastroepiploic
(gastroomental) vein
Superior mesenteric vein
Right gastroepiploic
(gastroomental) vein
Inferior pancreaticoduodenal veins
Pancreatic veins
Splenic vein
Left colic vein
Middle colic vein
Inferior mesenteric vein
Right colic vein
Ileocolic vein
Jejunal and ileal veins



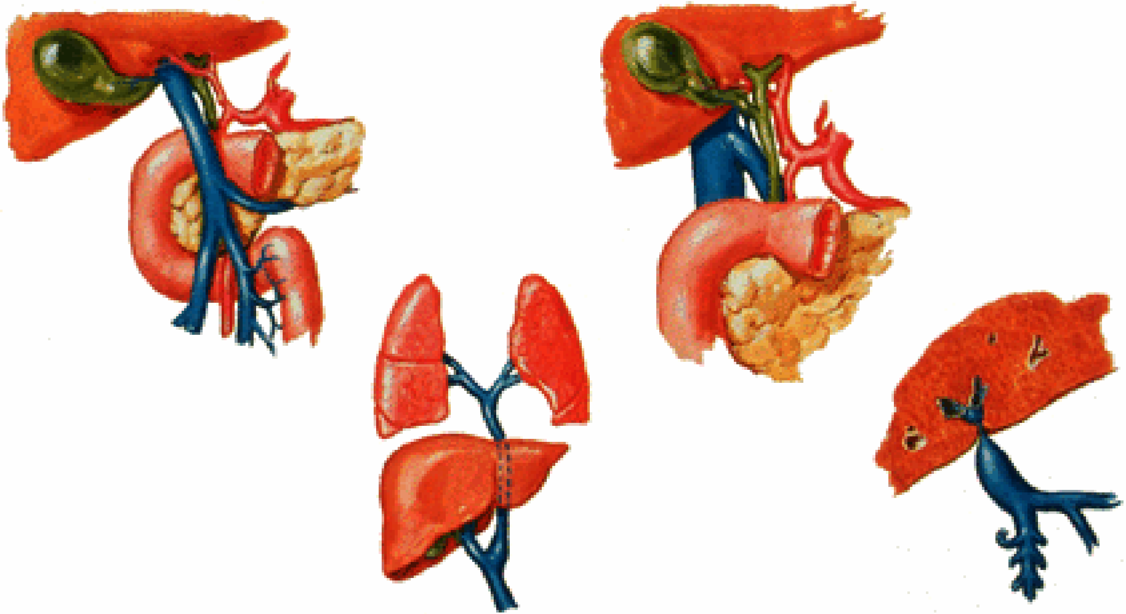
Left gastric vein often enters junction of splenic and superior mesenteric
Left gastric vein
Splenic vein
Portal vein
Superior mesenteric vein
Right gastric vein
Portal vein
Left gastric vein
Left gastric vein may enter splenic vein (24% of cases)
Splenic vein



Inferior mesenteric vein may enter junction of splenic and superior mesenteric veins



Inferior mesenteric vein may enter superior mesenteric vein

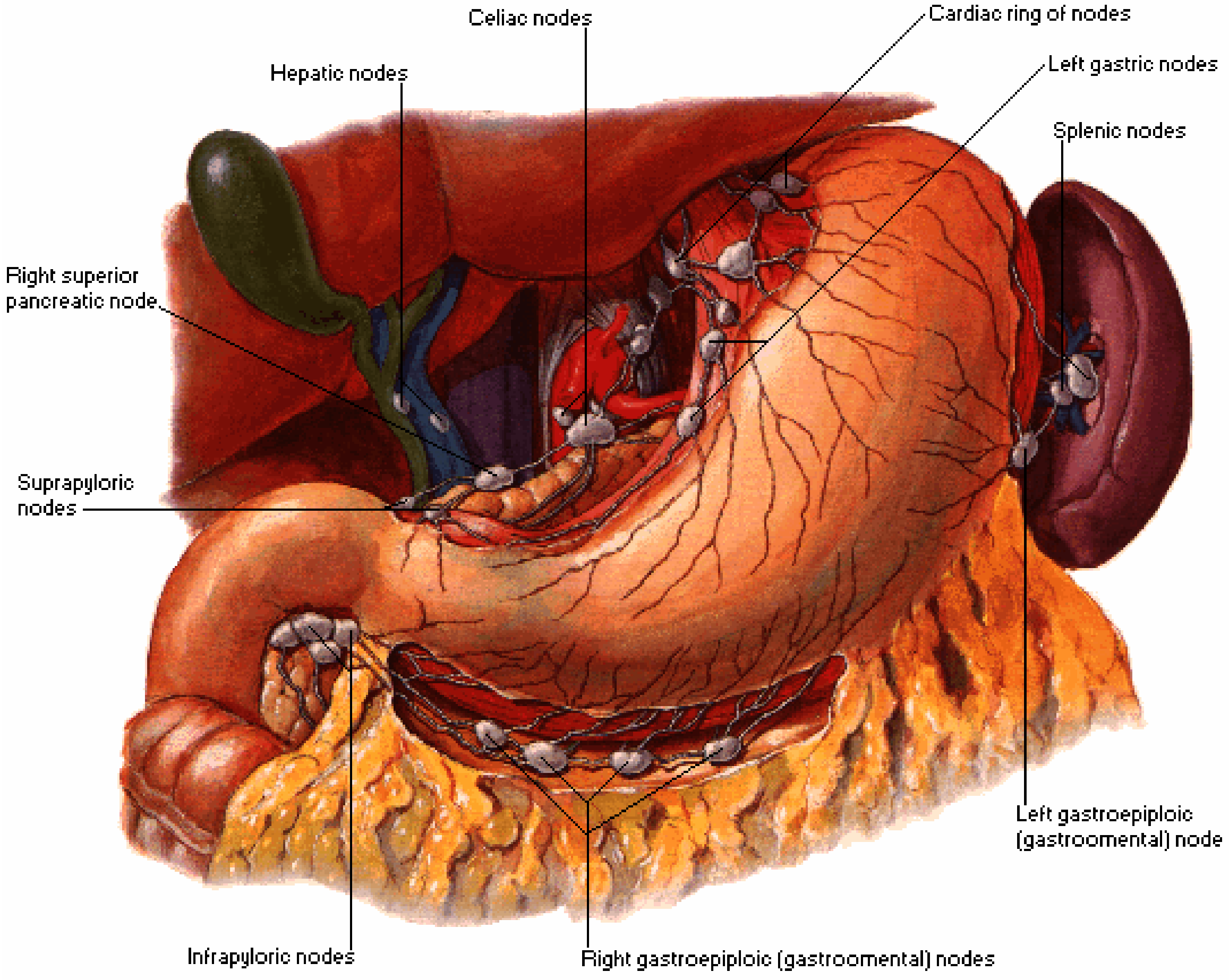


Portal vein anterior to head of pancreas and 1st part of duodenum

Portal vein may enter inferior vena cava (hepatic arteries enlarged)

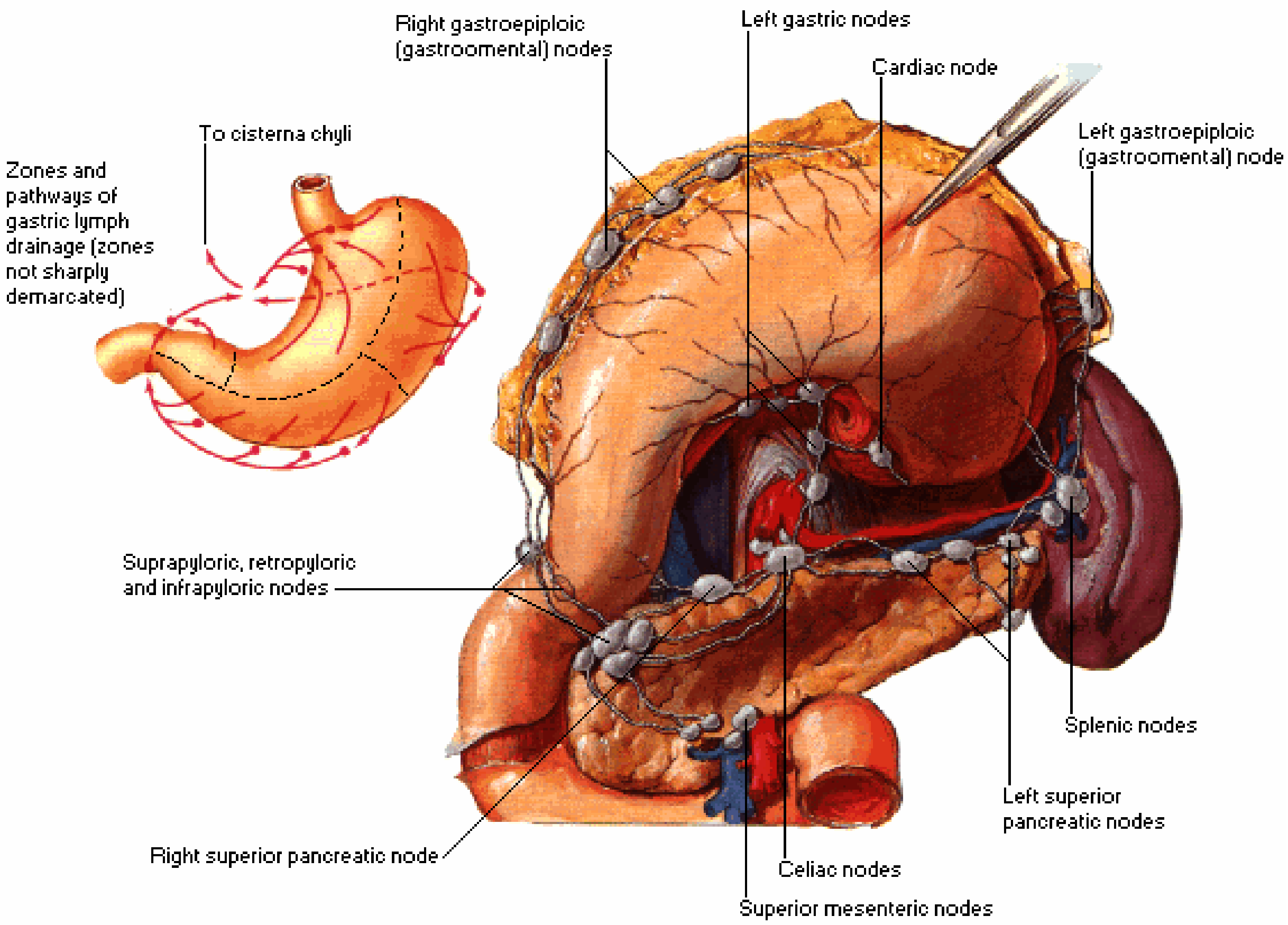
Pulmonary vein may enter portal vein

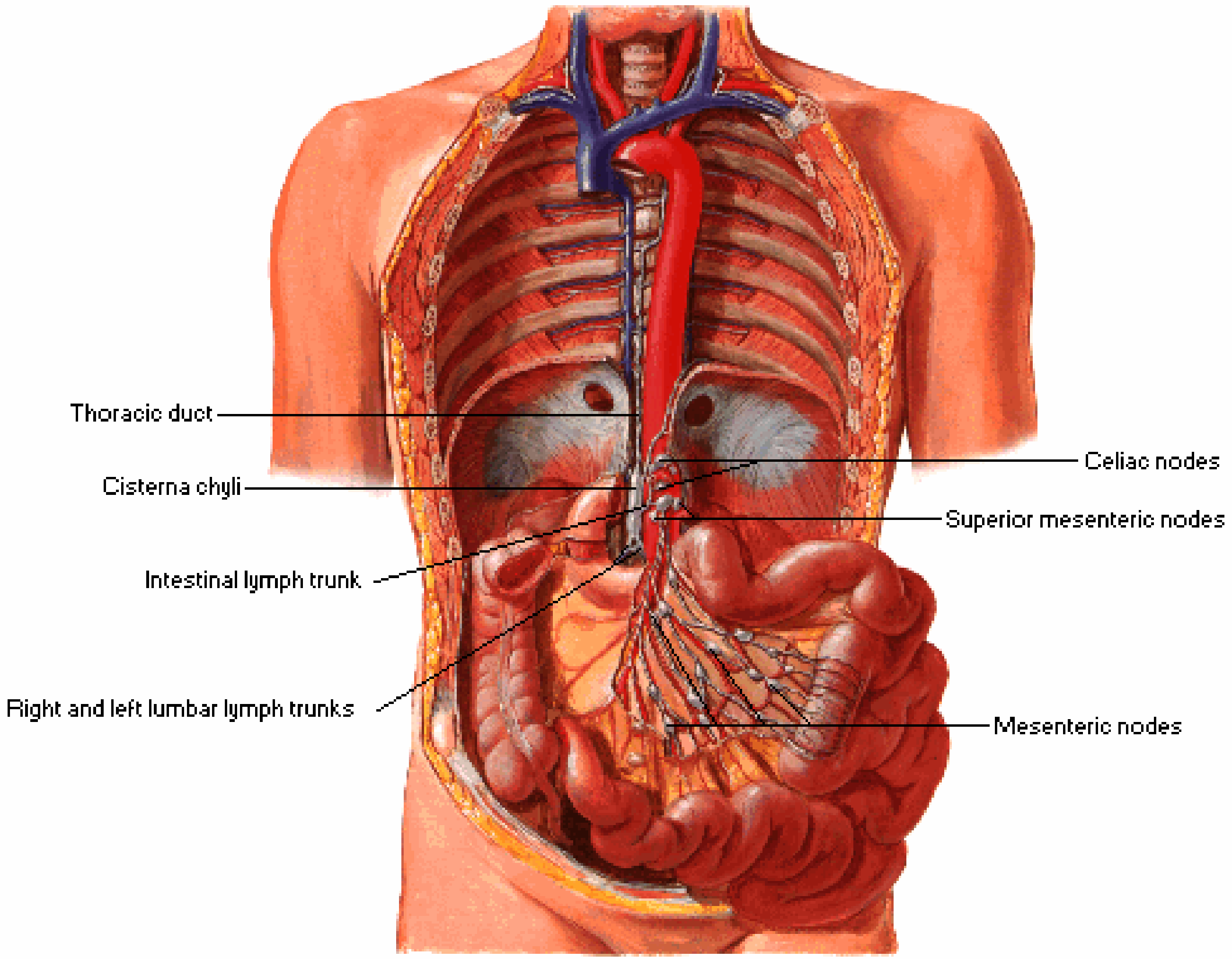
Congenital stricture of portal vein

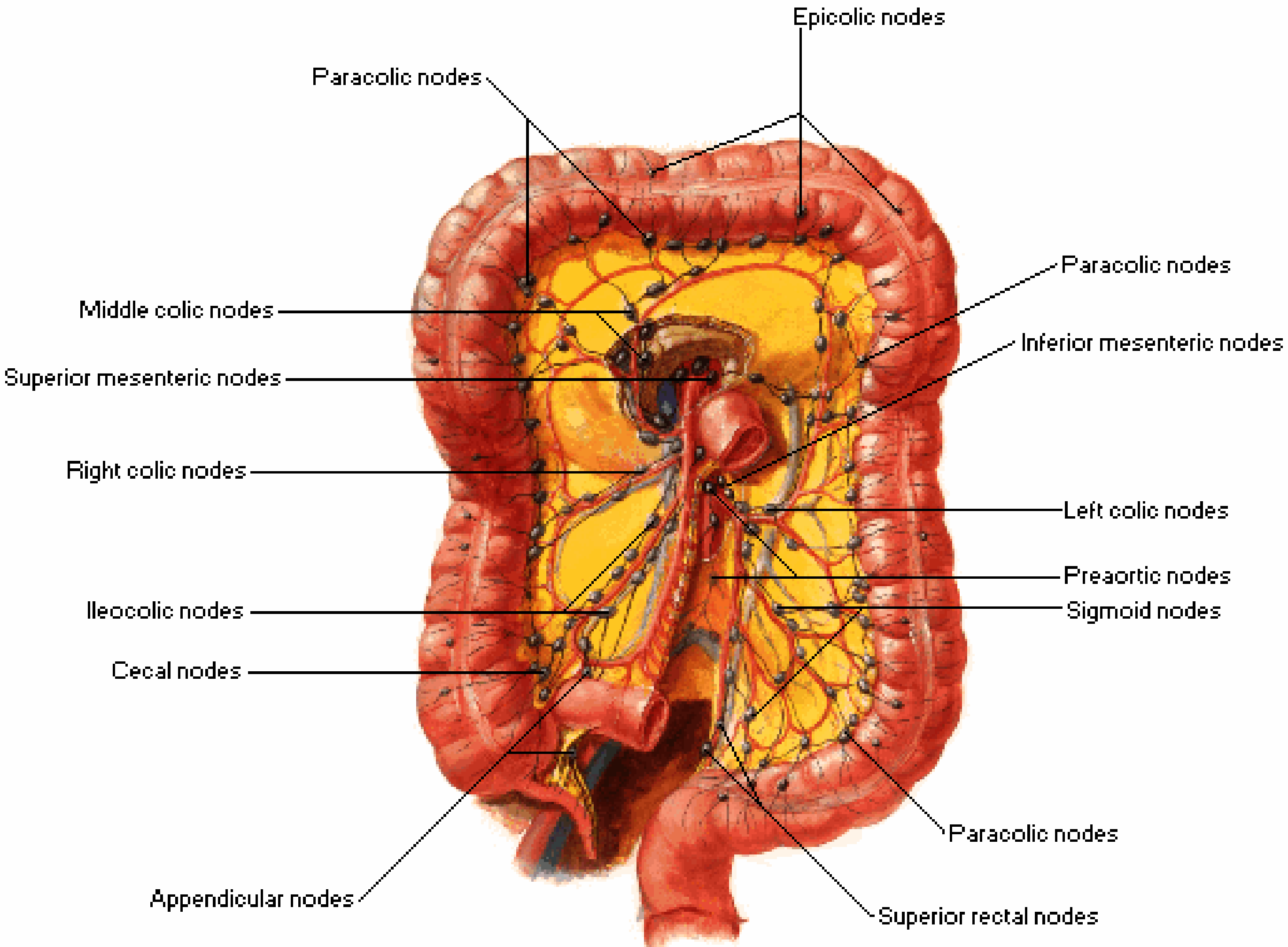


Celiac nodes
Cardiac ring of nodes
Left gastric nodes
Hepatic nodes
Splenic nodes
Right superior
pancreatic node
Suprapyloric
nodes
Left gastroepiploic
(gastroomental) node
Infrapyloric nodes
Right gastroepiploic (gastroomental) nodes

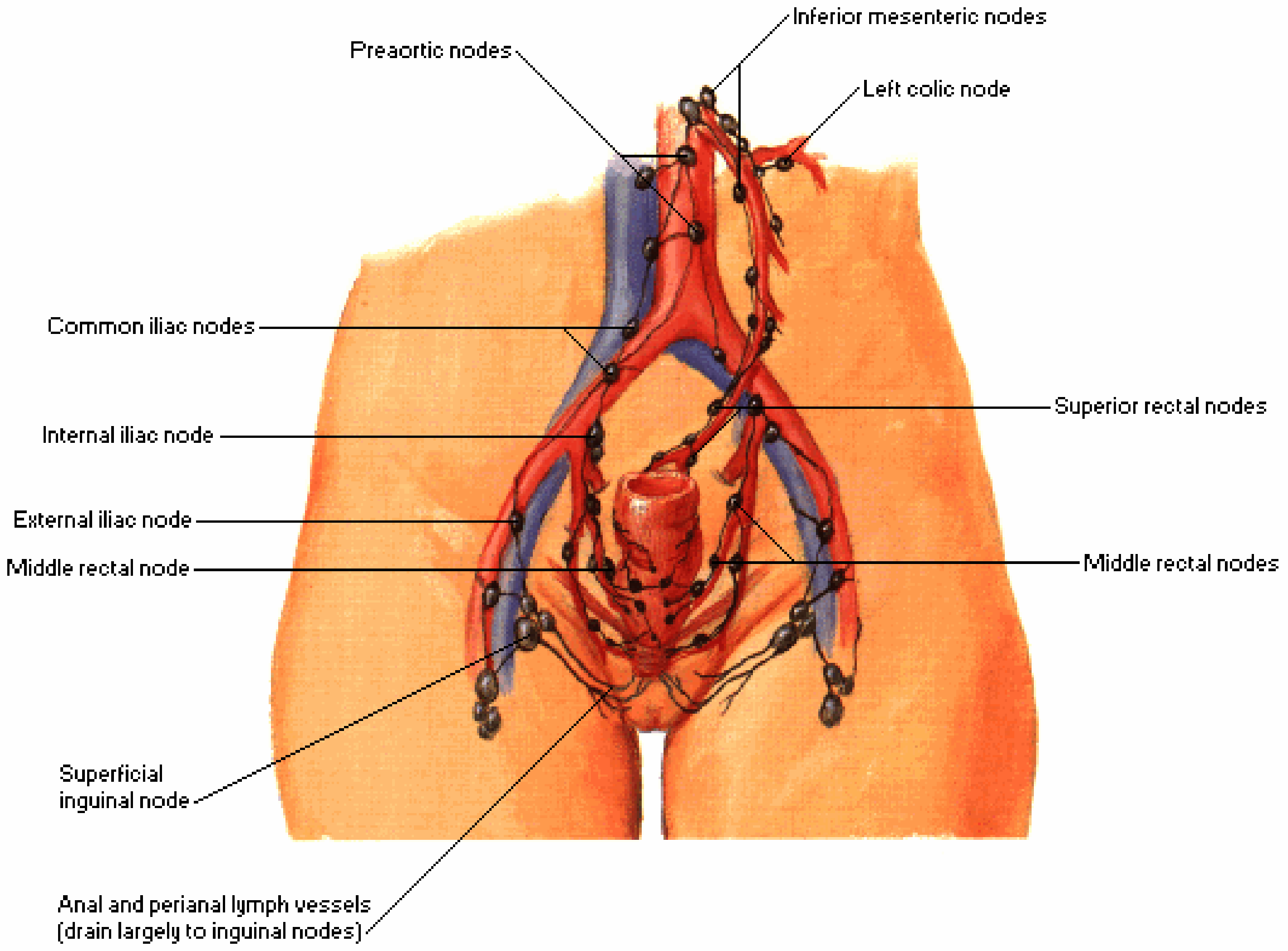
Stomach Reflected



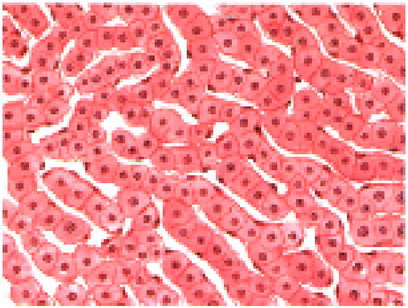

Thoracic duct
Cisterna chyli
Intestinal lymph trunk
Right and left lumbar lymph trunks
Celiac nodes
Superior mesenteric nodes
Mesenteric nodes



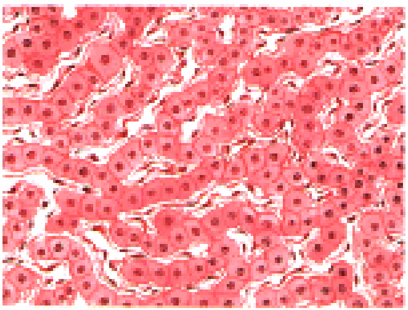
Epicolic nodes
Paracolic nodes
Paracolic nodes
Middle colic nodes
Inferior mesenteric nodes
Superior mesenteric nodes
Right colic nodes
Left colic nodes
Preaortic nodes
Ileocolic nodes
Sigmoid nodes
Cecal nodes
Paracolic nodes
Appendicular nodes
Superior rectal nodes


Inferior mesenteric nodes
Preaortic nodes
Left colic node
Common iliac nodes
Superior rectal nodes
Internal iliac node
External iliac node
Middle rectal node
Middle rectal nodes
Superficial inguinal node
Anal and perianal lymph vessels (drain largely to inguinal nodes)

Histology

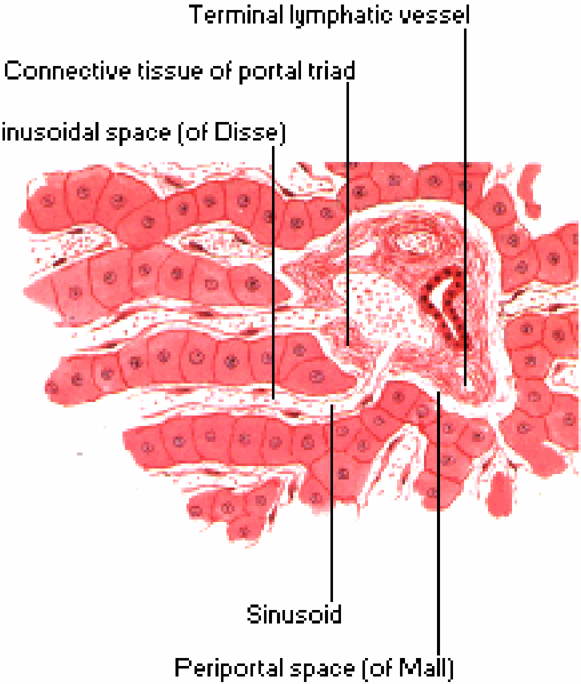


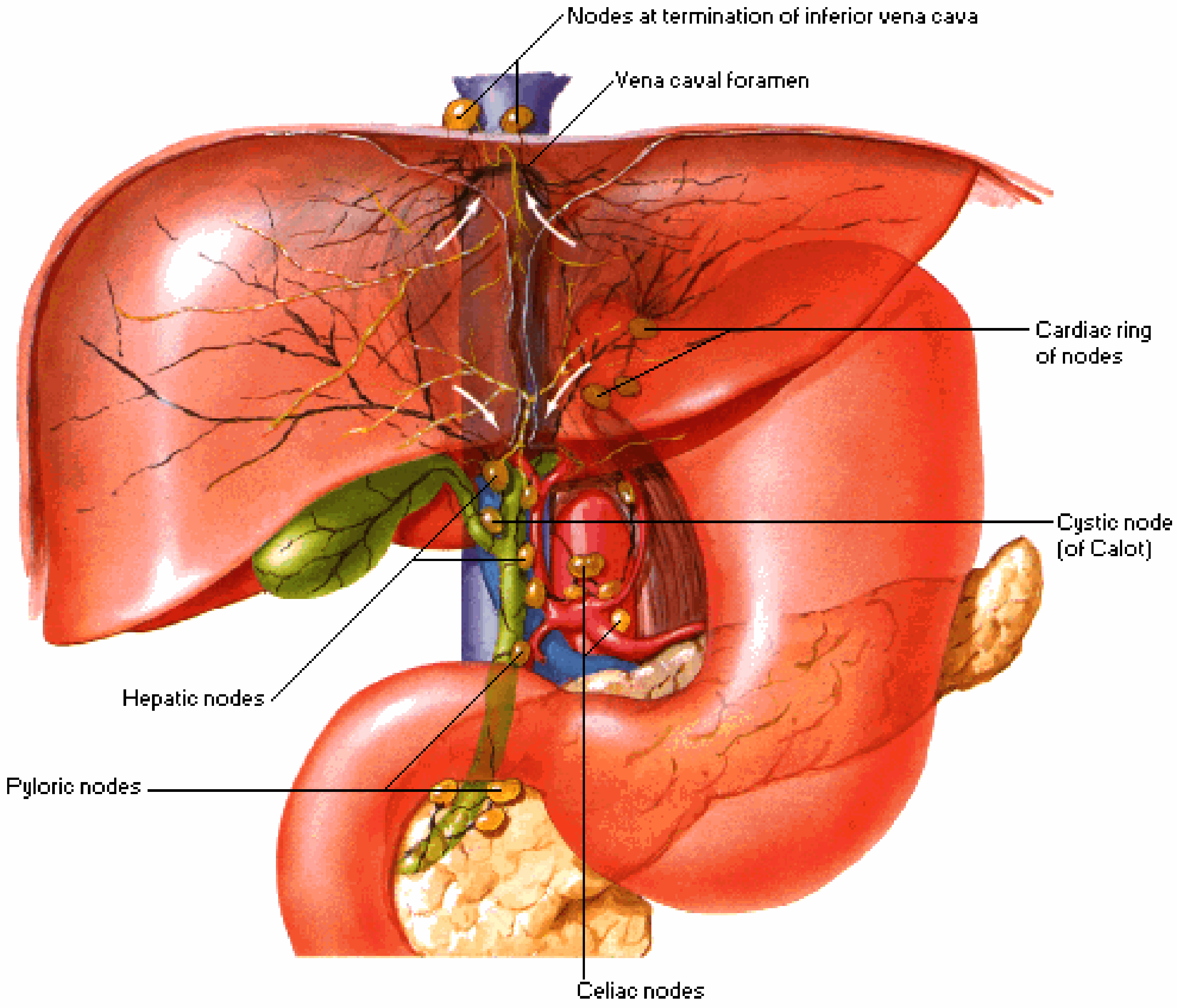
Perisinusoidal spaces (of Disse) very narrow or obliterated



Perisinusoidal spaces (of Disse) markedly widened

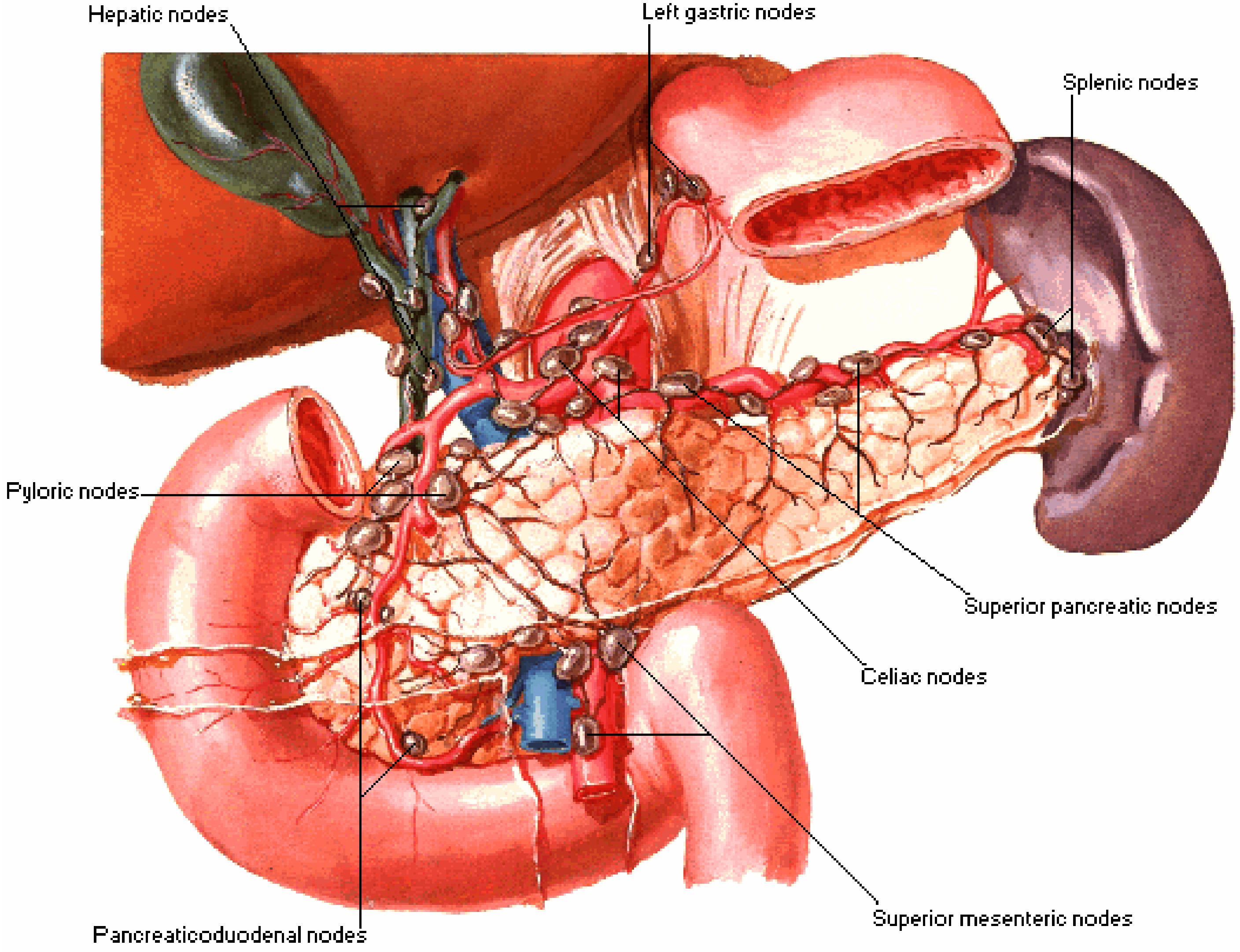
Low - power sections of liver



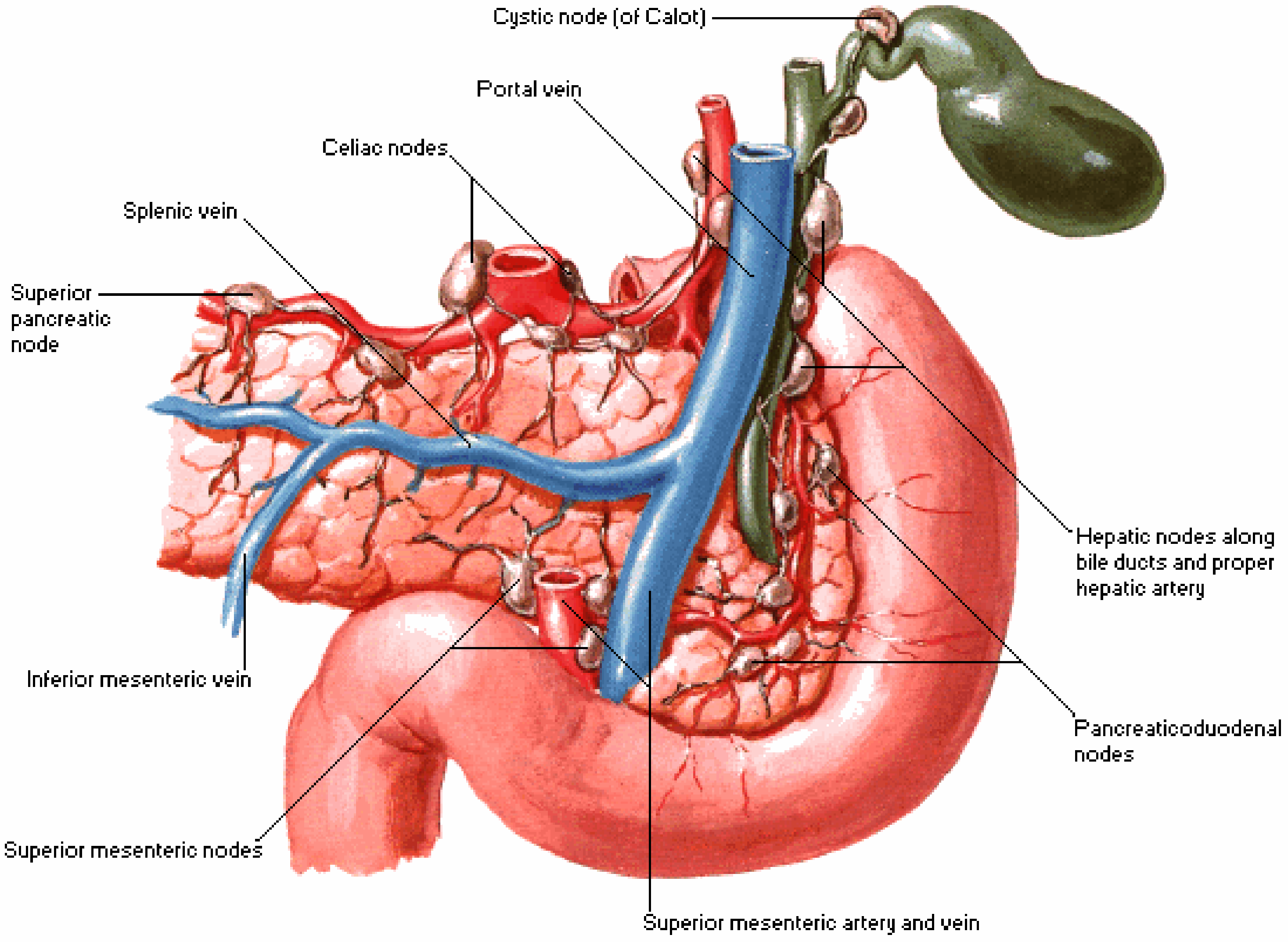


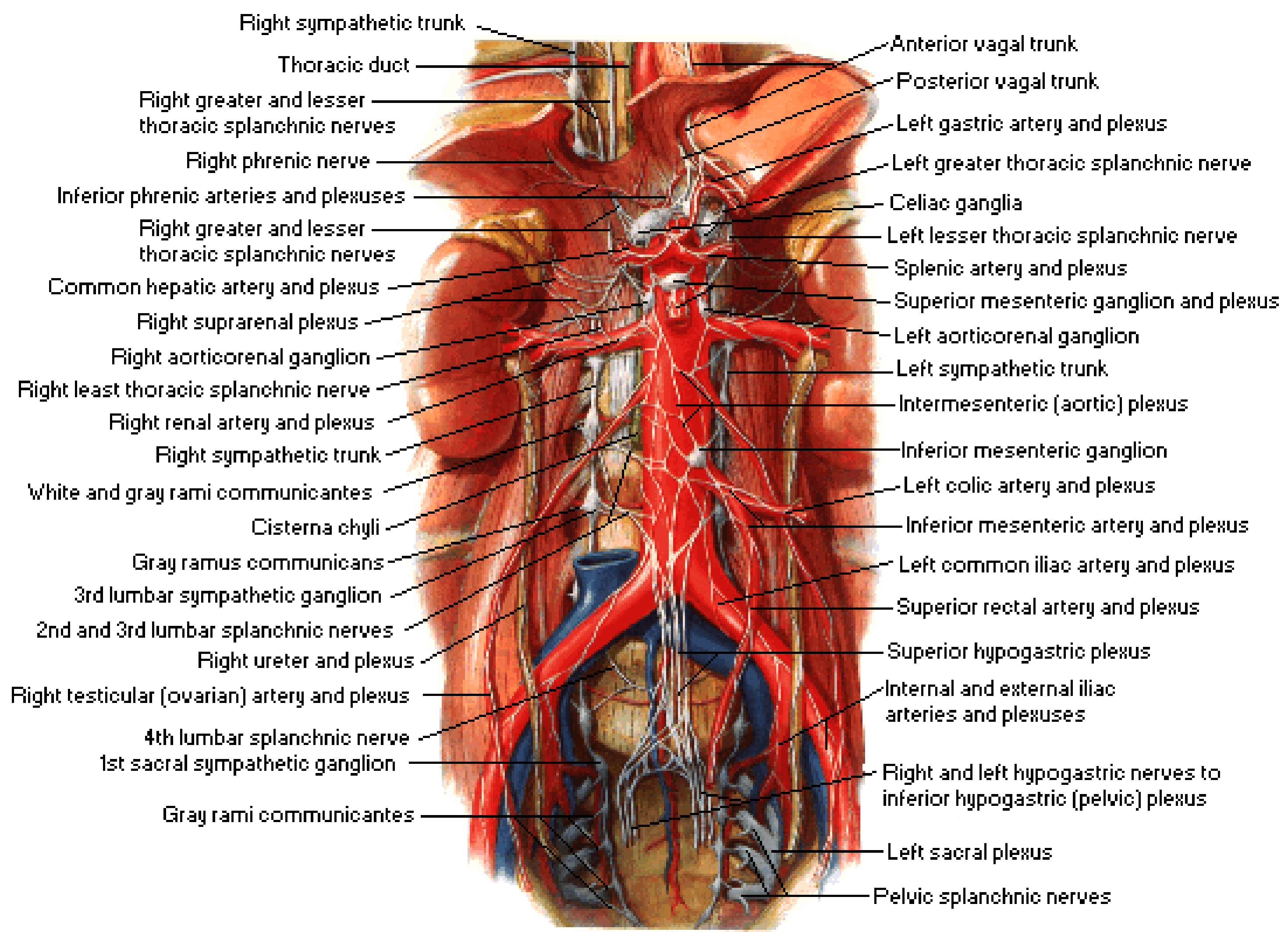
Nodes at termination of inferior vena cava
Vena caval foramen
Cardiac ring
of nodes
Cystic node
(of Calot)
Hepatic nodes
Pyloric nodes
Celiac nodes

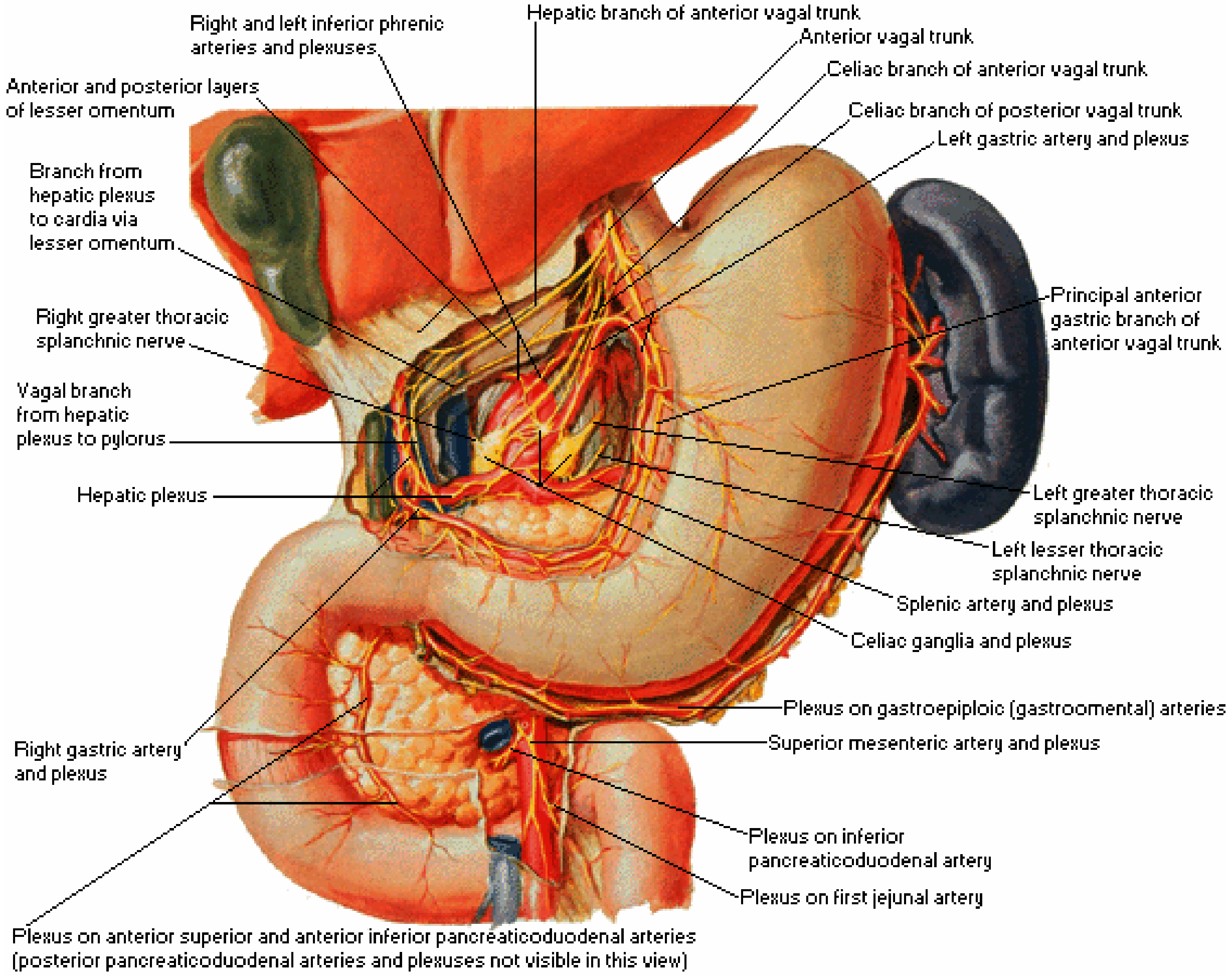
Anterior View



Posterior View

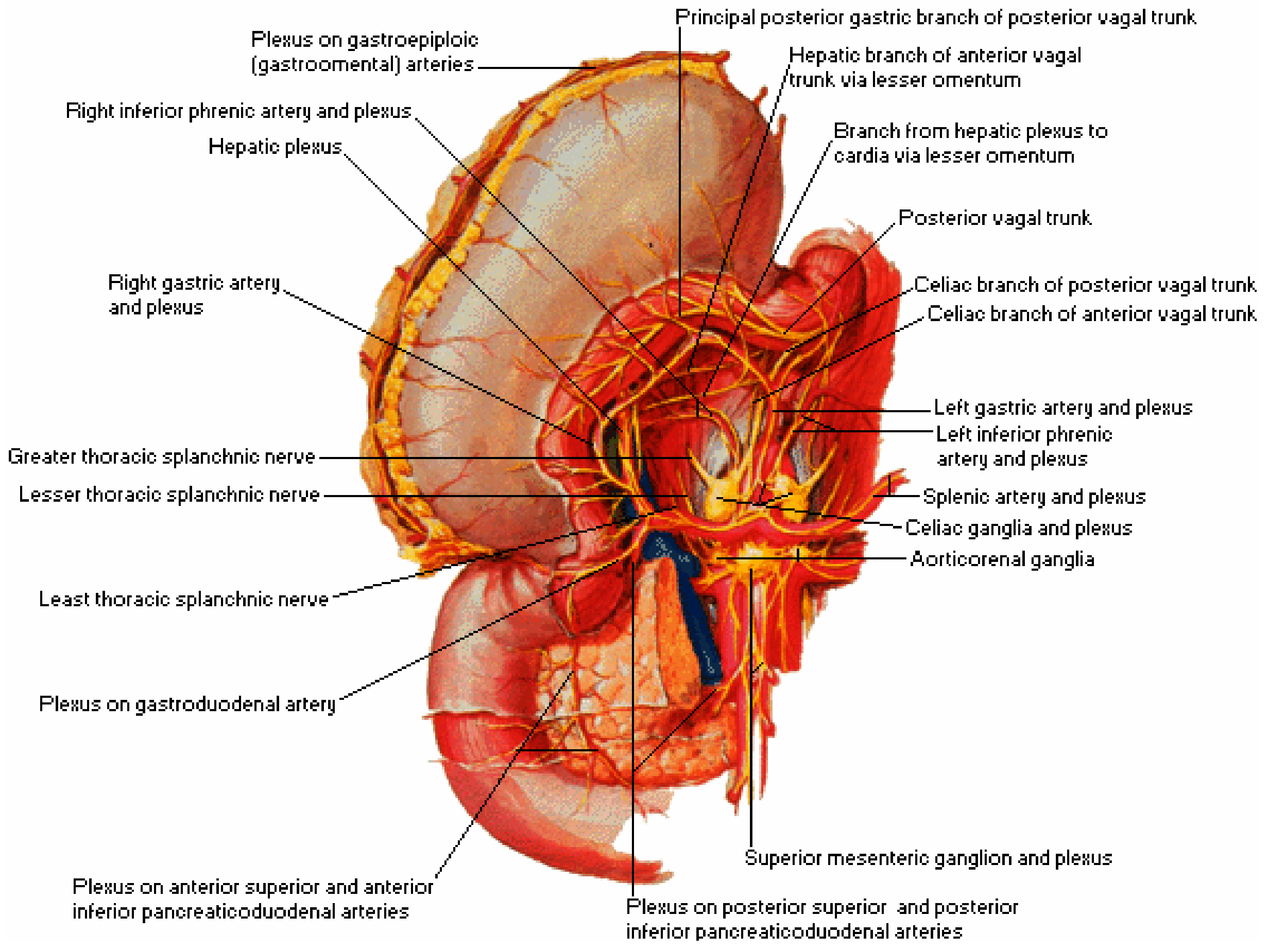



Right sympathetic trunk
Thoracic duct
Right greater and lesser thoracic splanchnic nerves
Right phrenic nerve
Inferior phrenic arteries and plexuses
Right greater and lesser thoracic splanchnic nerves
Common hepatic artery and plexus
Right suprarenal plexus
Right aorticorenal ganglion
Right least thoracic splanchnic nerve
Right renal artery and plexus
Right sympathetic trunk
White and gray rami communicantes
Cisterna chyli
Gray ramus communicans
3rd lumbar sympathetic ganglion
2nd and 3rd lumbar splanchnic nerves
Right ureter and plexus
Right testicular (ovarian) artery and plexus
4th lumbar splanchnic nerve
1st sacral sympathetic ganglion
Gray rami communicantes
Anterior vagal trunk
Posterior vagal trunk
Left gastric artery and plexus
Left greater thoracic splanchnic nerve
Celiac ganglia
Left lesser thoracic splanchnic nerve
Splenic artery and plexus
Superior mesenteric ganglion and plexus
Left aorticorenal ganglion
Left sympathetic trunk
Intermesenteric (aortic) plexus
Inferior mesenteric ganglion
Left colic artery and plexus
Inferior mesenteric artery and plexus
Left common iliac artery and plexus
Superior rectal artery and plexus
Superior hypogastric plexus
Internal and external iliac arteries and plexuses
Right and left hypogastric nerves to inferior hypogastric (pelvic) plexus
Left sacral plexus
Pelvic splanchnic nerves

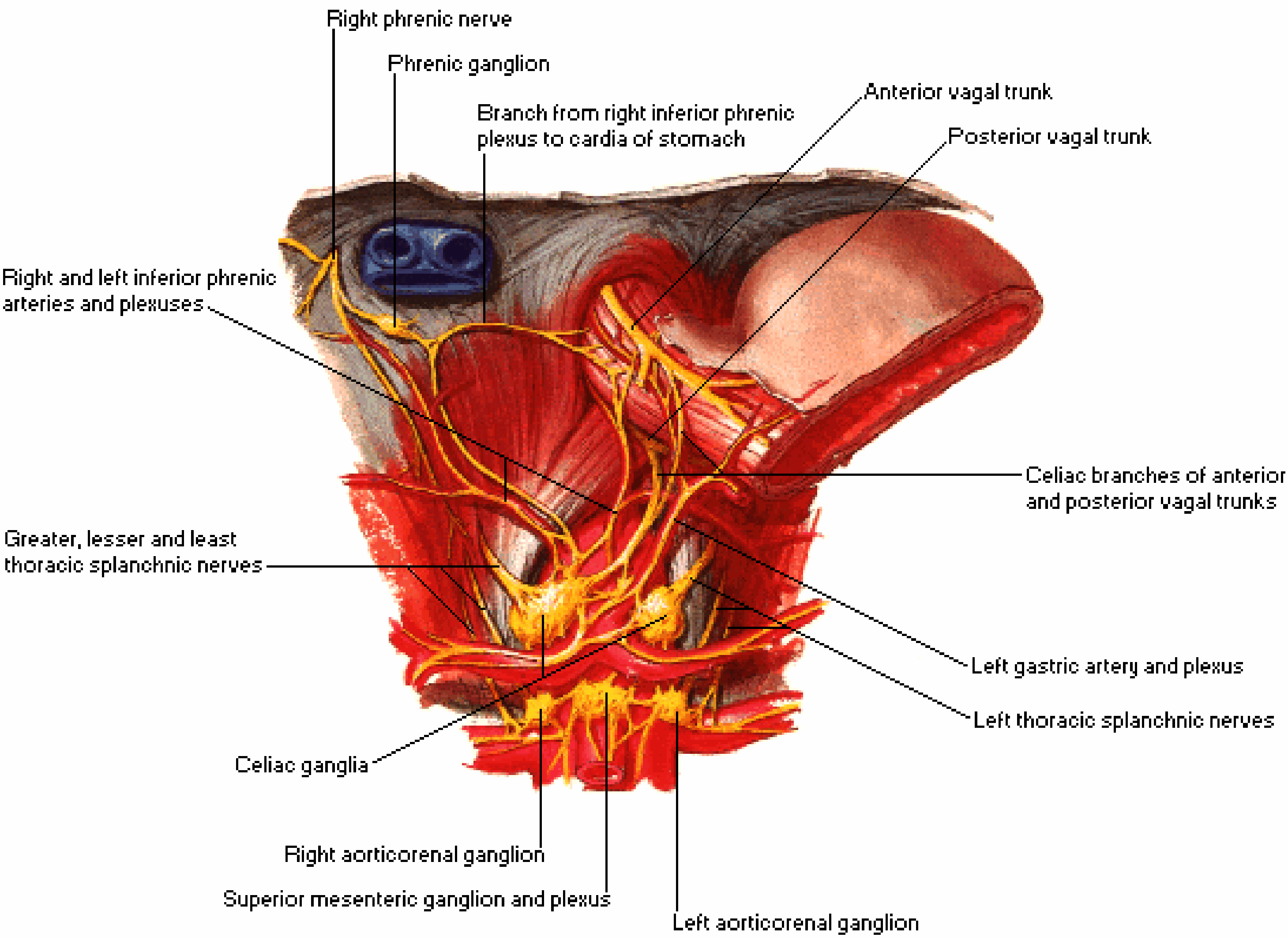


Right and left inferior phrenic arteries and plexuses
Hepatic branch of anterior vagal trunk
Anterior vagal trunk
Celiac branch of anterior vagal trunk
Celiac branch of posterior vagal trunk
Left gastric artery and plexus
Anterior and posterior layers of lesser omentum
Branch from hepatic plexus to cardia via lesser omentum
Right greater thoracic splanchnic nerve
Vagal branch from hepatic plexus to pylorus
Hepatic plexus
Principal anterior gastric branch of anterior vagal trunk
Left greater thoracic splanchnic nerve
Left lesser thoracic splanchnic nerve
Splenic artery and plexus
Celiac ganglia and plexus
Plexus on gastroepiploic (gastroomental) arteries
Superior mesenteric artery and plexus
Right gastric artery and plexus
Plexus on inferior pancreaticoduodenal artery
Plexus on first jejunal artery
Plexus on anterior superior and anterior inferior pancreaticoduodenal arteries (posterior pancreaticoduodenal arteries and plexuses not visible in this view)

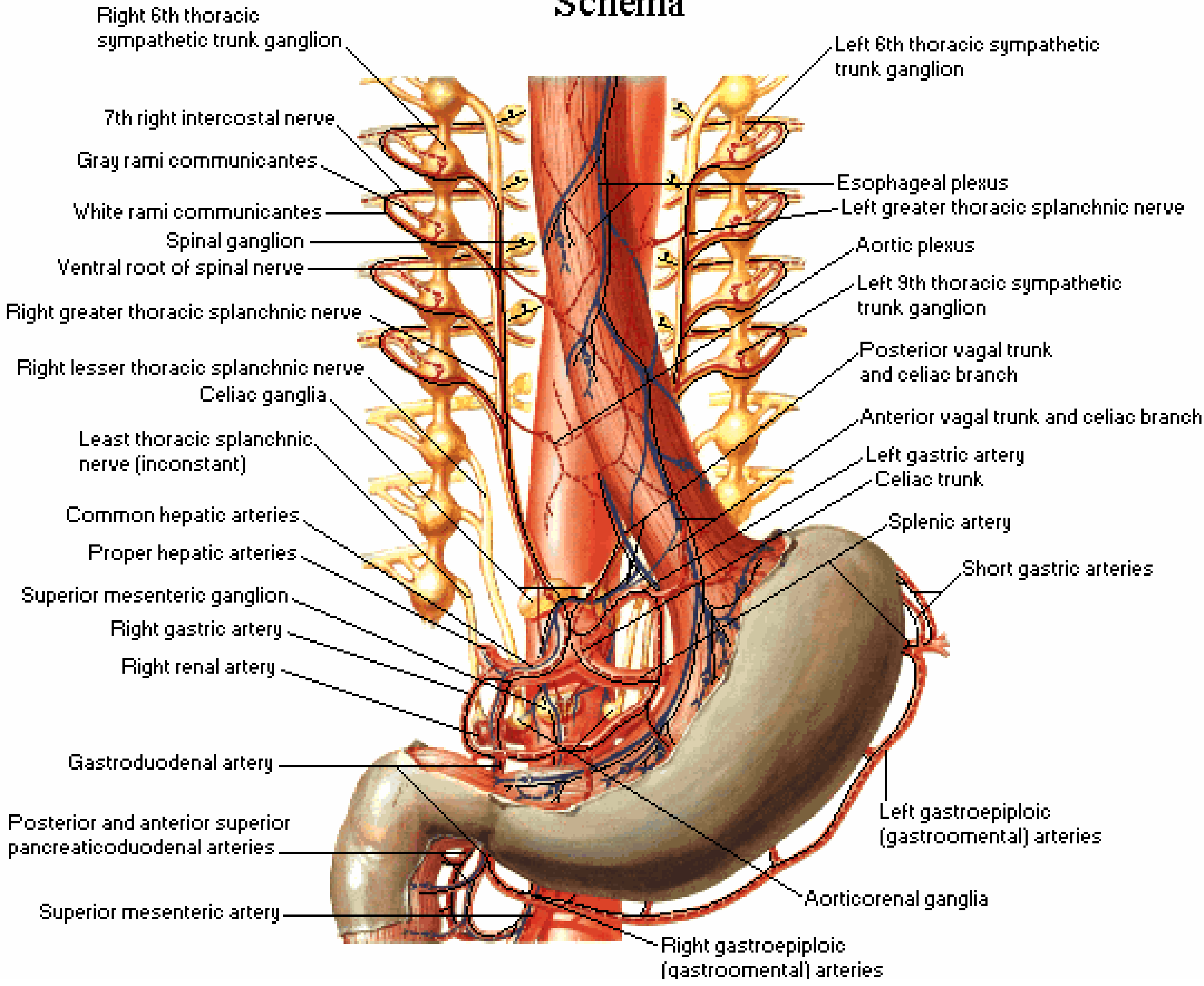
View with Stomach Reflected



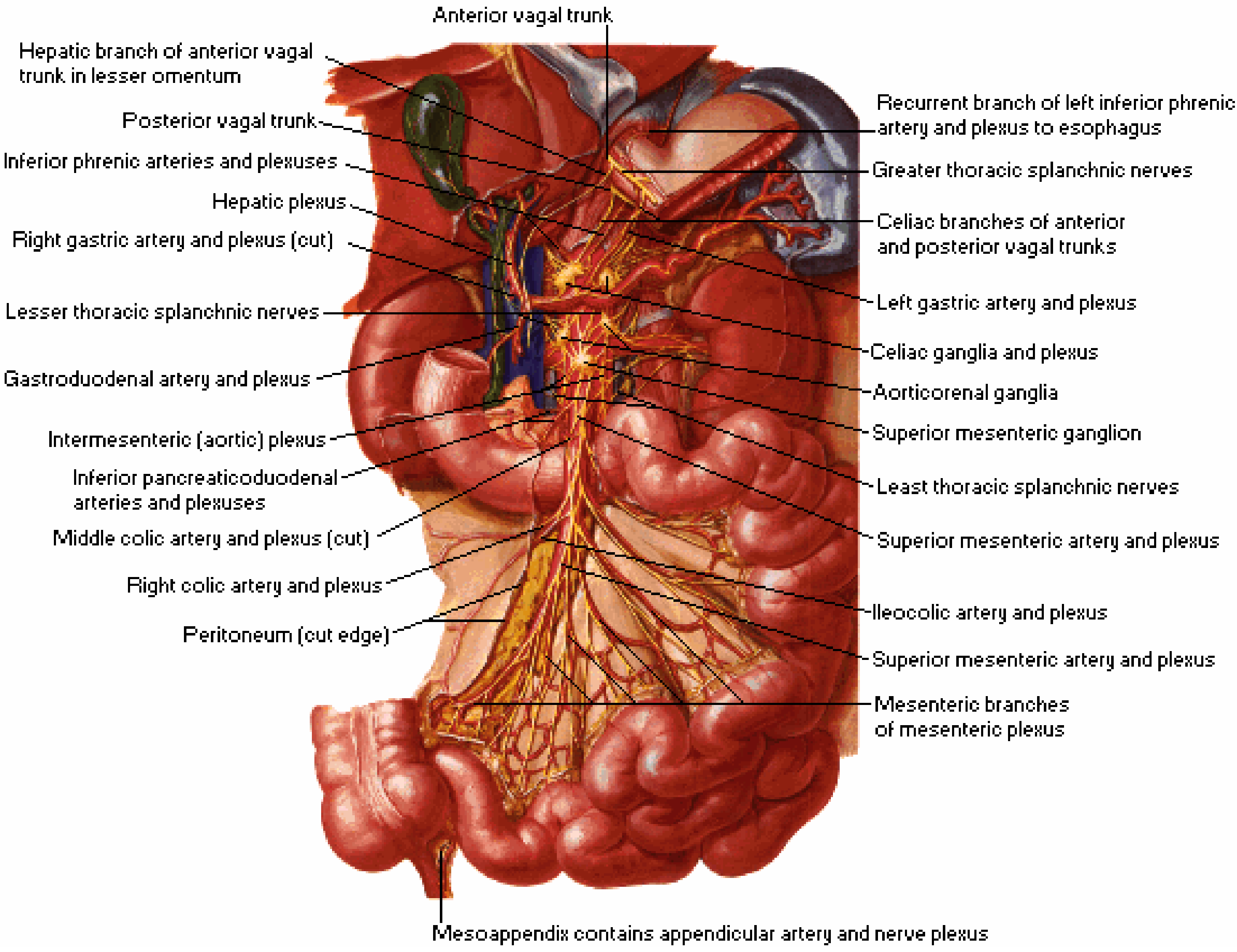
Hiatal Region

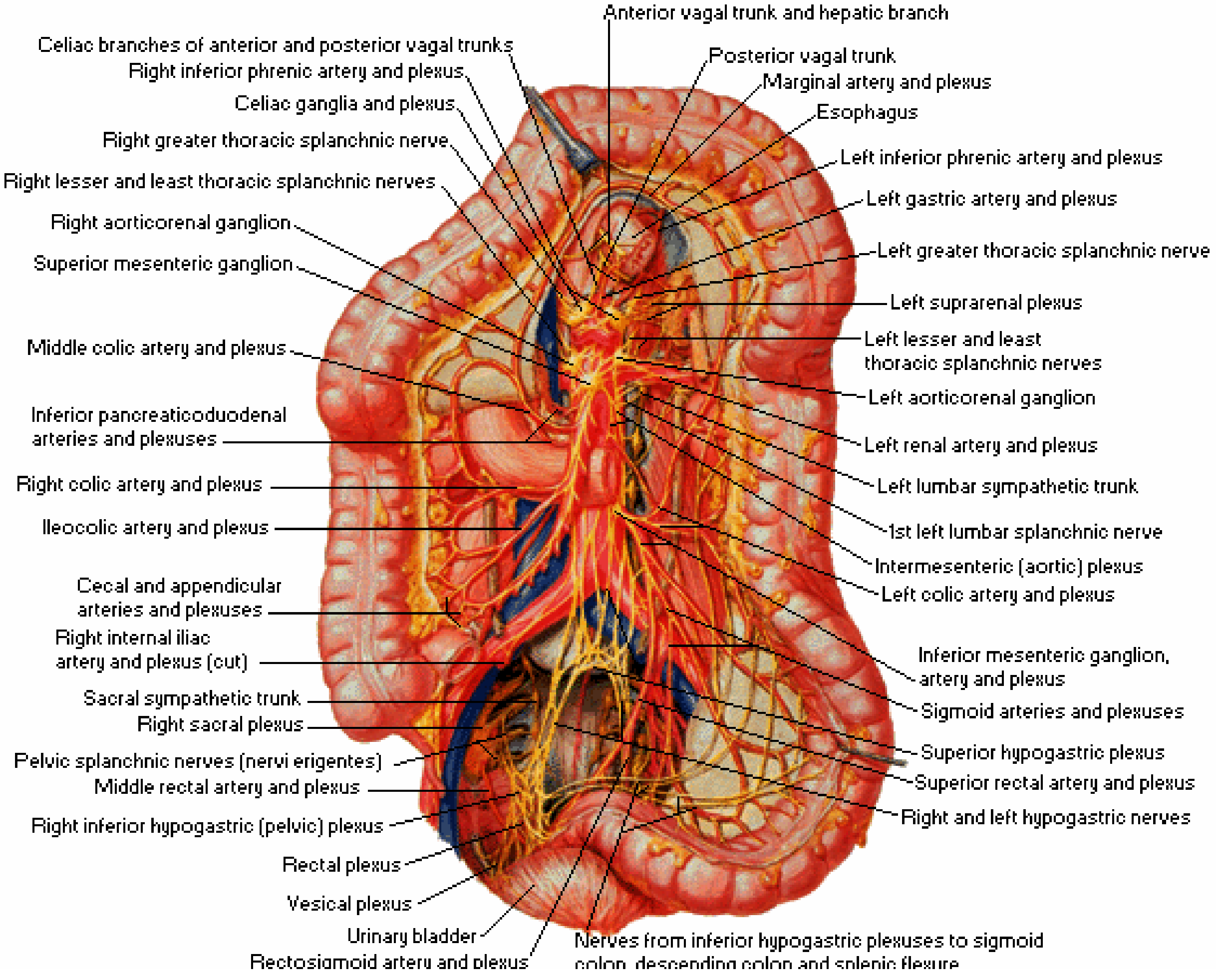


Schema



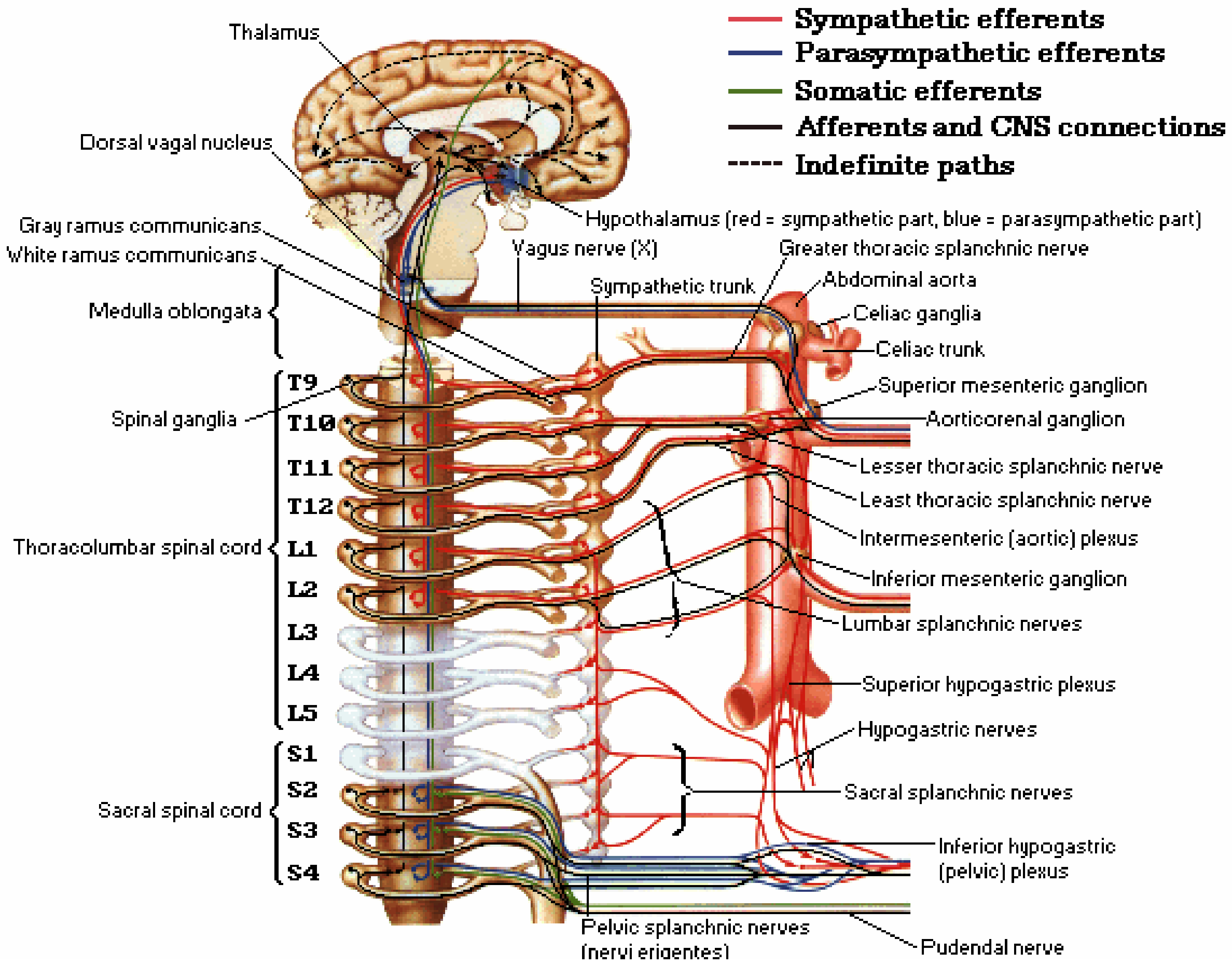
Right 6th thoracic sympathetic trunk ganglion
7th right intercostal nerve
Gray rami communicantes
White rami communicantes
Spinal ganglion
Ventral root of spinal nerve
Right greater thoracic splanchnic nerve
Right lesser thoracic splanchnic nerve
Celiac ganglia
Least thoracic splanchnic nerve (inconstant)
Common hepatic arteries
Proper hepatic arteries
Superior mesenteric ganglion
Right gastric artery
Right renal artery
Gastroduodenal artery
Posterior and anterior superior pancreaticoduodenal arteries
Superior mesenteric artery
Left 6th thoracic sympathetic trunk ganglion
Esophageal plexus
Left greater thoracic splanchnic nerve
Aortic plexus
Left 9th thoracic sympathetic trunk ganglion
Posterior vagal trunk and celiac branch
Anterior vagal trunk and celiac branch
Left gastric artery
Celiac trunk
Splenic artery
Short gastric arteries
Left gastroepiploic (gastroomental) arteries
Aorticorenal ganglia
Right gastroepiploic (gastroomental) arteries


Anterior vagal trunk
Hepatic branch of anterior vagal trunk in lesser omentum
Posterior vagal trunk
Inferior phrenic arteries and plexuses
Hepatic plexus
Right gastric artery and plexus (cut)
Lesser thoracic splanchnic nerves
Gastroduodenal artery and plexus
Intermesenteric (aortic) plexus
Inferior pancreaticoduodenal arteries and plexuses
Middle colic artery and plexus (cut)
Right colic artery and plexus
Peritoneum (cut edge)
Recurrent branch of left inferior phrenic artery and plexus to esophagus
Greater thoracic splanchnic nerves
Celiac branches of anterior and posterior vagal trunks
Left gastric artery and plexus
Celiac ganglia and plexus
Aorticorenal ganglia
Superior mesenteric ganglion
Least thoracic splanchnic nerves
Superior mesenteric artery and plexus
Ileocolic artery and plexus
Superior mesenteric artery and plexus
Mesenteric branches of mesenteric plexus
Mesoappendix contains appendicular artery and nerve plexus

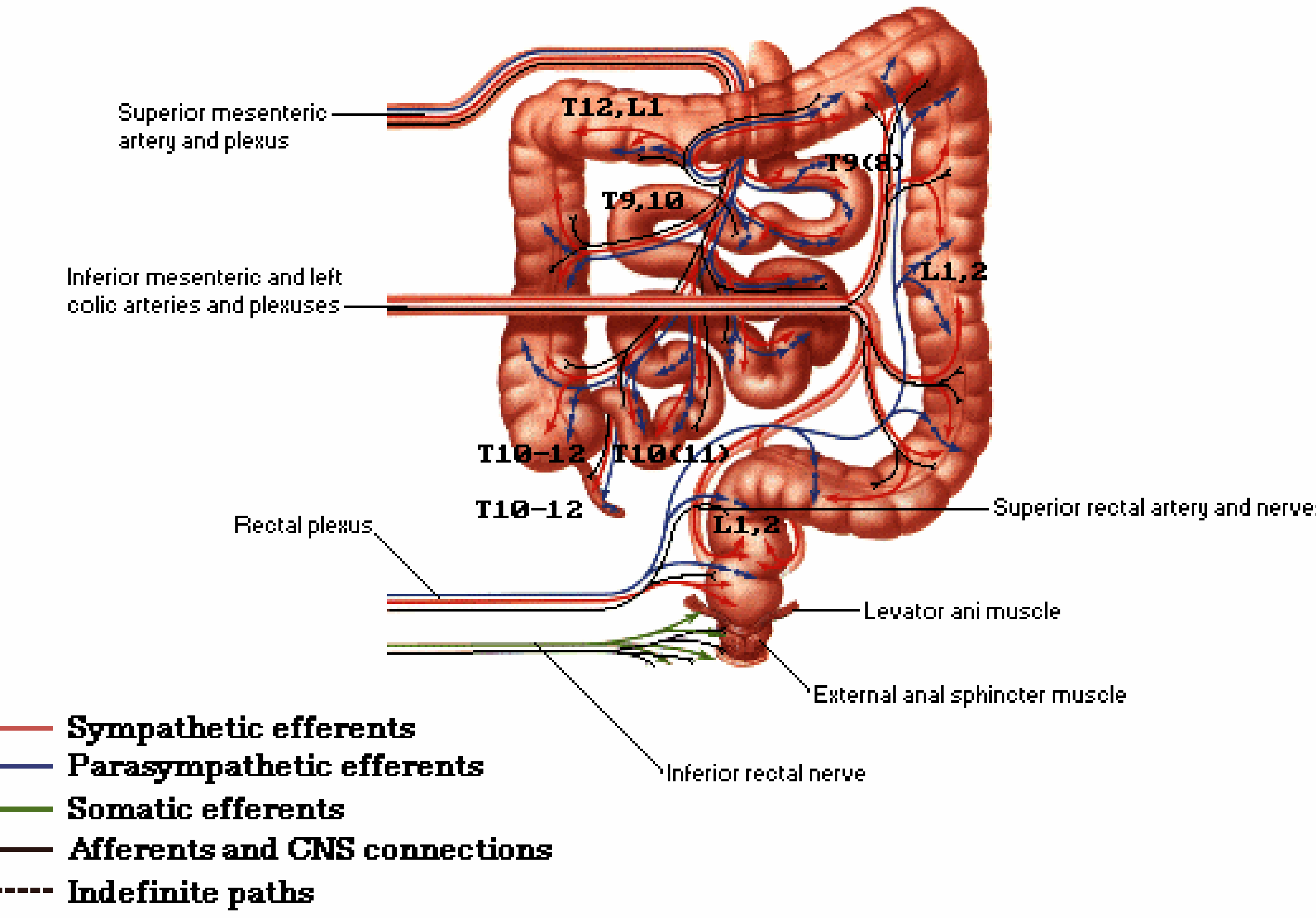


Anterior vagal trunk and hepatic branch
Celiac branches of anterior and posterior vagal trunks
Posterior vagal trunk
Right inferior phrenic artery and plexus
Marginal artery and plexus
Celiac ganglia and plexus
Esophagus
Right greater thoracic splanchnic nerve
Left inferior phrenic artery and plexus
Right lesser and least thoracic splanchnic nerves
Left gastric artery and plexus
Right aorticorenal ganglion
Left greater thoracic splanchnic nerve
Superior mesenteric ganglion
Left suprarenal plexus
Left lesser and least
thoracic splanchnic nerves
Middle colic artery and plexus
Left aorticorenal ganglion
Inferior pancreaticoduodenal
arteries and plexuses
Left renal artery and plexus
Right colic artery and plexus
Left lumbar sympathetic trunk
Ileocolic artery and plexus
1st left lumbar splanchnic nerve
Intermesenteric (aortic) plexus
Cecal and appendicular
arteries and plexuses
Left colic artery and plexus
Right internal iliac
artery and plexus (cut)
Inferior mesenteric ganglion,
artery and plexus
Sacral sympathetic trunk
Sigmoid arteries and plexuses
Right sacral plexus
Superior hypogastric plexus
Pelvic splanchnic nerves (nervi erigentes)
Superior rectal artery and plexus
Middle rectal artery and plexus
Right and left hypogastric nerves
Right inferior hypogastric (pelvic) plexus
Rectal plexus
Vesical plexus
Urinary bladder
Rectosigmoid artery and plexus
Nerves from inferior hypogastric plexuses to sigmoid
colon, descending colon and splenic flexure

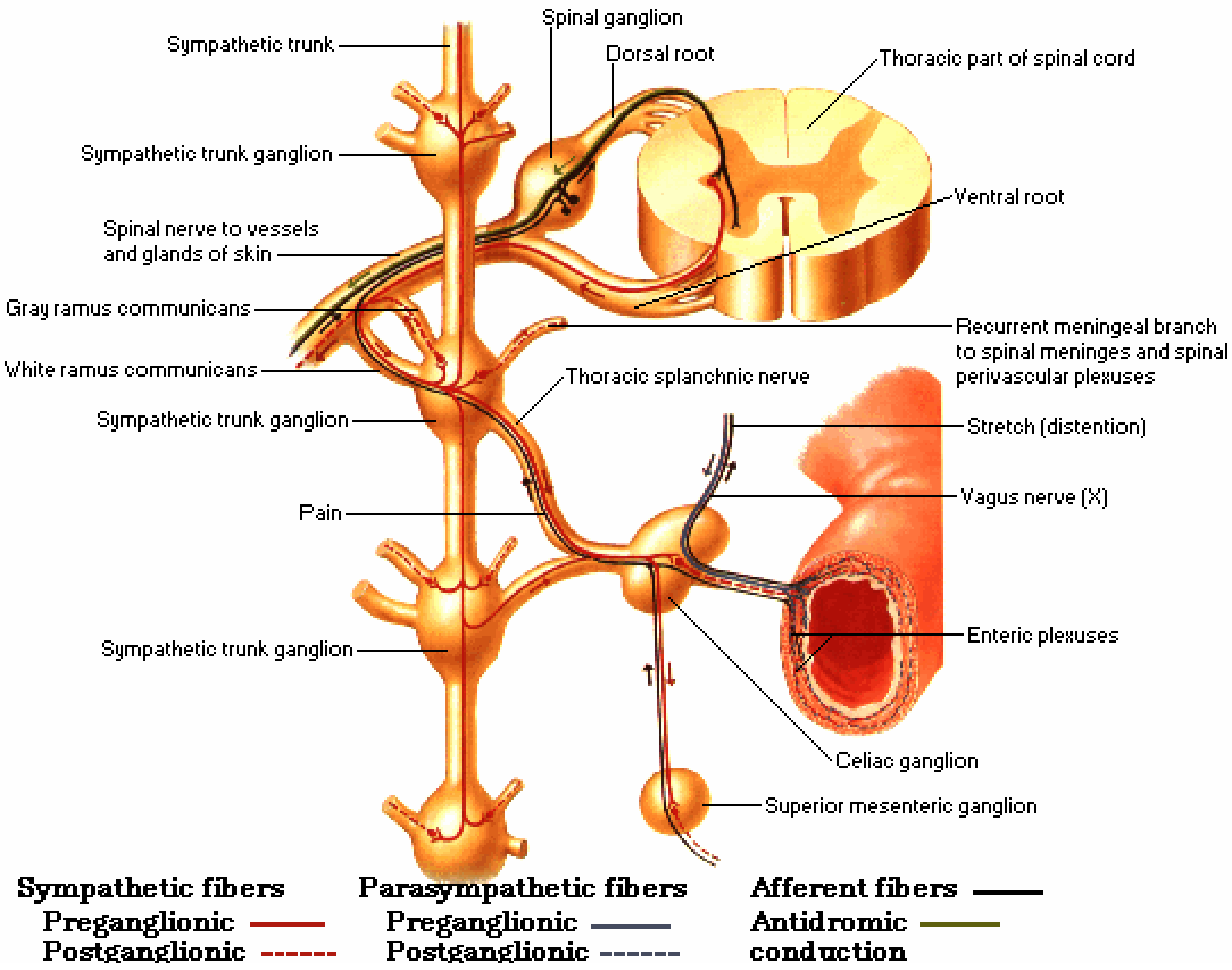
Left Side of Schema



Right Side of Schema



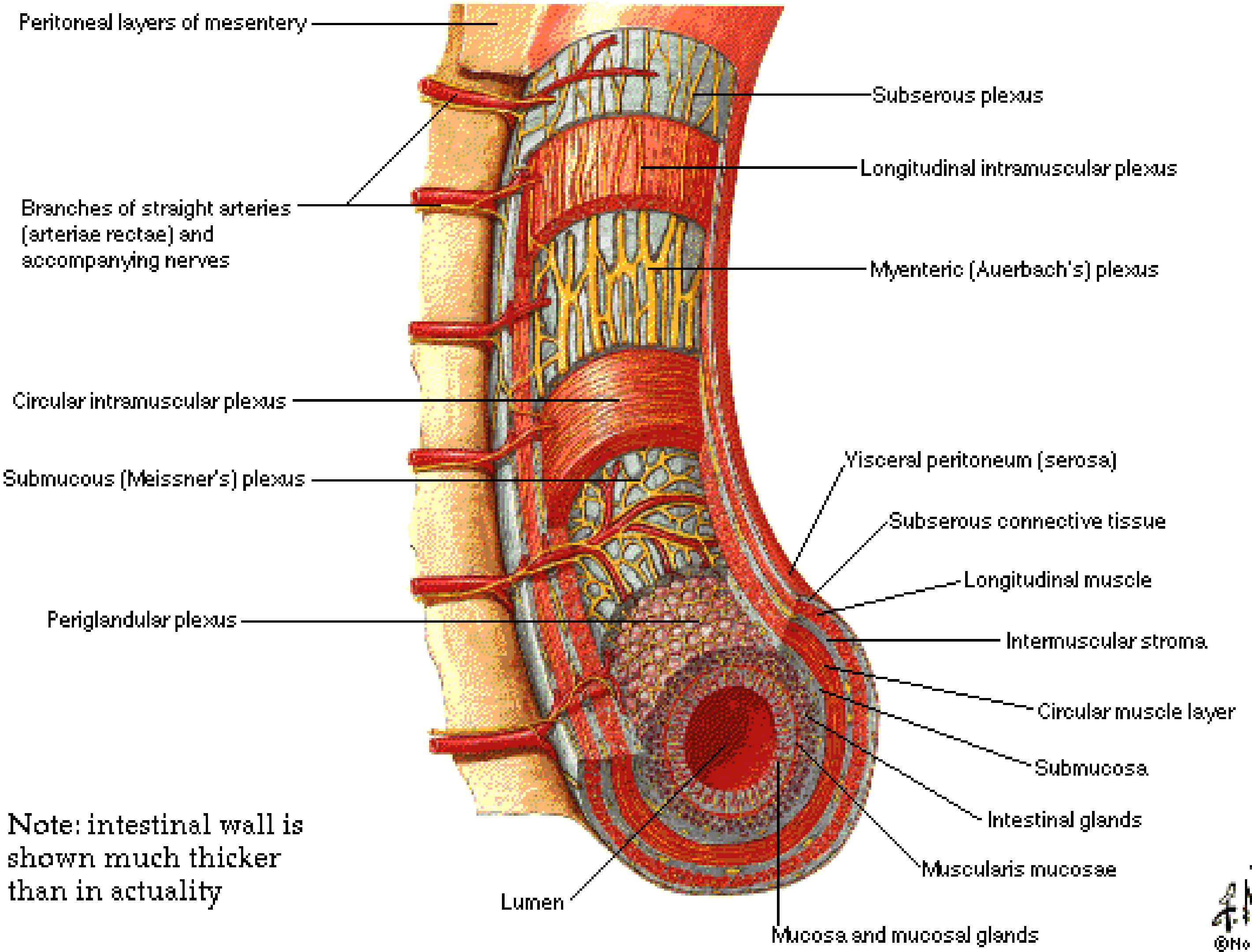
Schema



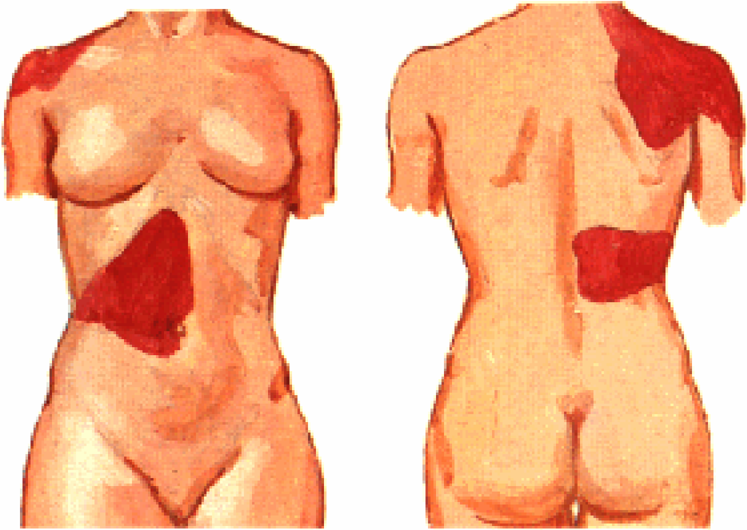
Spinal ganglion
Dorsal root
Sympathetic trunk
Thoracic part of spinal cord
Sympathetic trunk ganglion
Ventral root
Spinal nerve to vessels and glands of skin
Gray ramus communicans
Recurrent meningeal branch to spinal meninges and spinal perivascular plexuses
White ramus communicans
Thoracic splanchnic nerve
Sympathetic trunk ganglion
Stretch (distention)
Vagus nerve (X)
Pain
Enteric plexuses
Sympathetic trunk ganglion
Celiac ganglion
Superior mesenteric ganglion
Sympathetic fibers
Preganglionic
Postganglionic
Parasympathetic fibers
Preganglionic
Postganglionic
Afferent fibers
Antidromic conduction

Intrinsic Autonomic Plexuses of Intestine

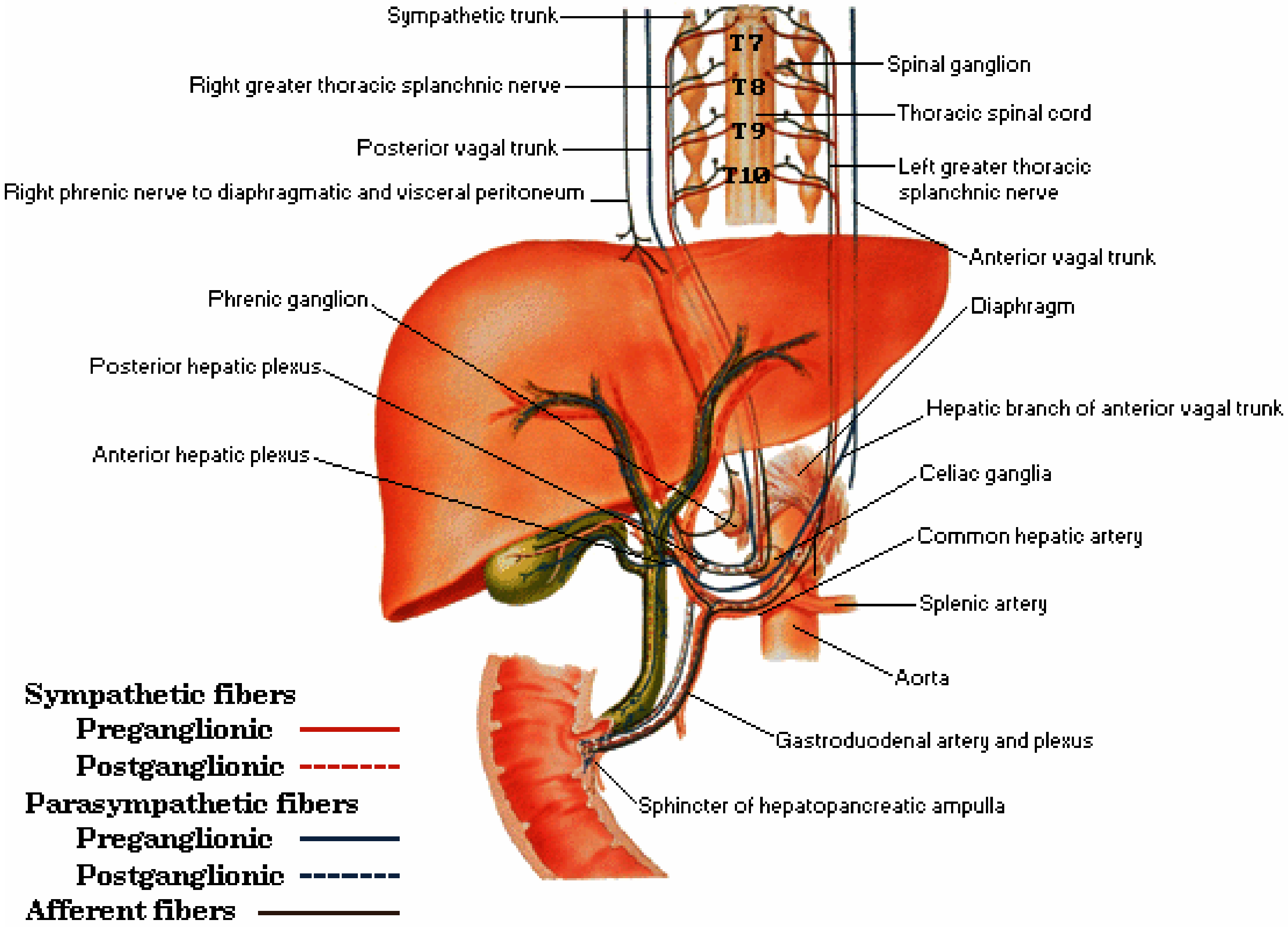
Schema



Note: intestinal wall is shown much thicker than in actuality

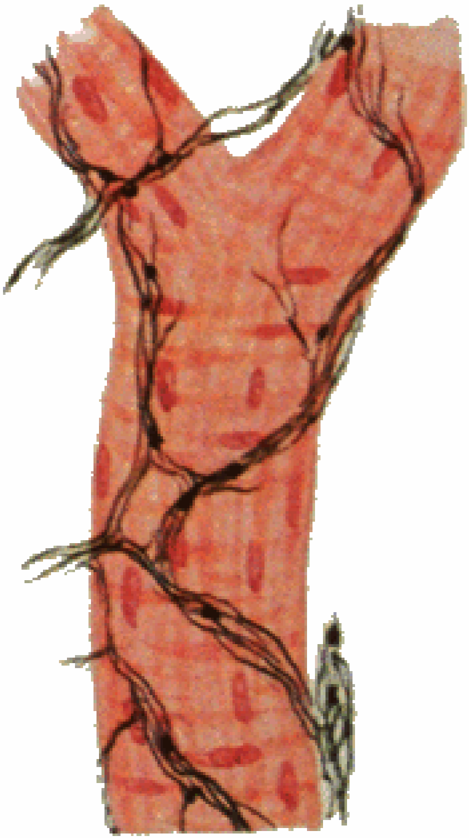


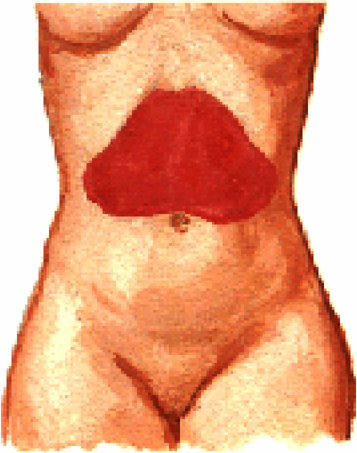
Schema

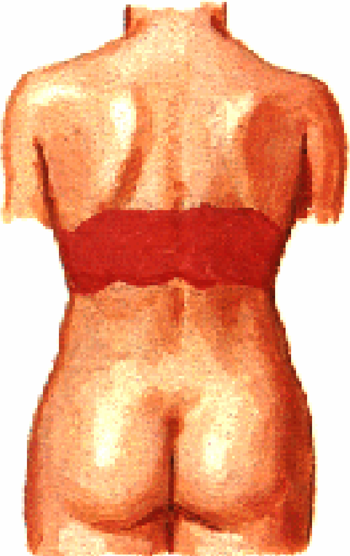


Sympathetic trunk
T7
T8
T9
T10
Spinal ganglion
Right greater thoracic splanchnic nerve
Thoracic spinal cord
Posterior vagal trunk
Left greater thoracic splanchnic nerve
Right phrenic nerve to diaphragmatic and visceral peritoneum
Anterior vagal trunk
Phrenic ganglion
Diaphragm
Posterior hepatic plexus
Hepatic branch of anterior vagal trunk
Anterior hepatic plexus
Celiac ganglia
Common hepatic artery
Splenic artery
Aorta
Gastroduodenal artery and plexus
Sphincter of hepatopancreatic ampulla
Sympathetic fibers
Preganglionic
Postganglionic
Parasympathetic fibers
Preganglionic
Postganglionic
Afferent fibers

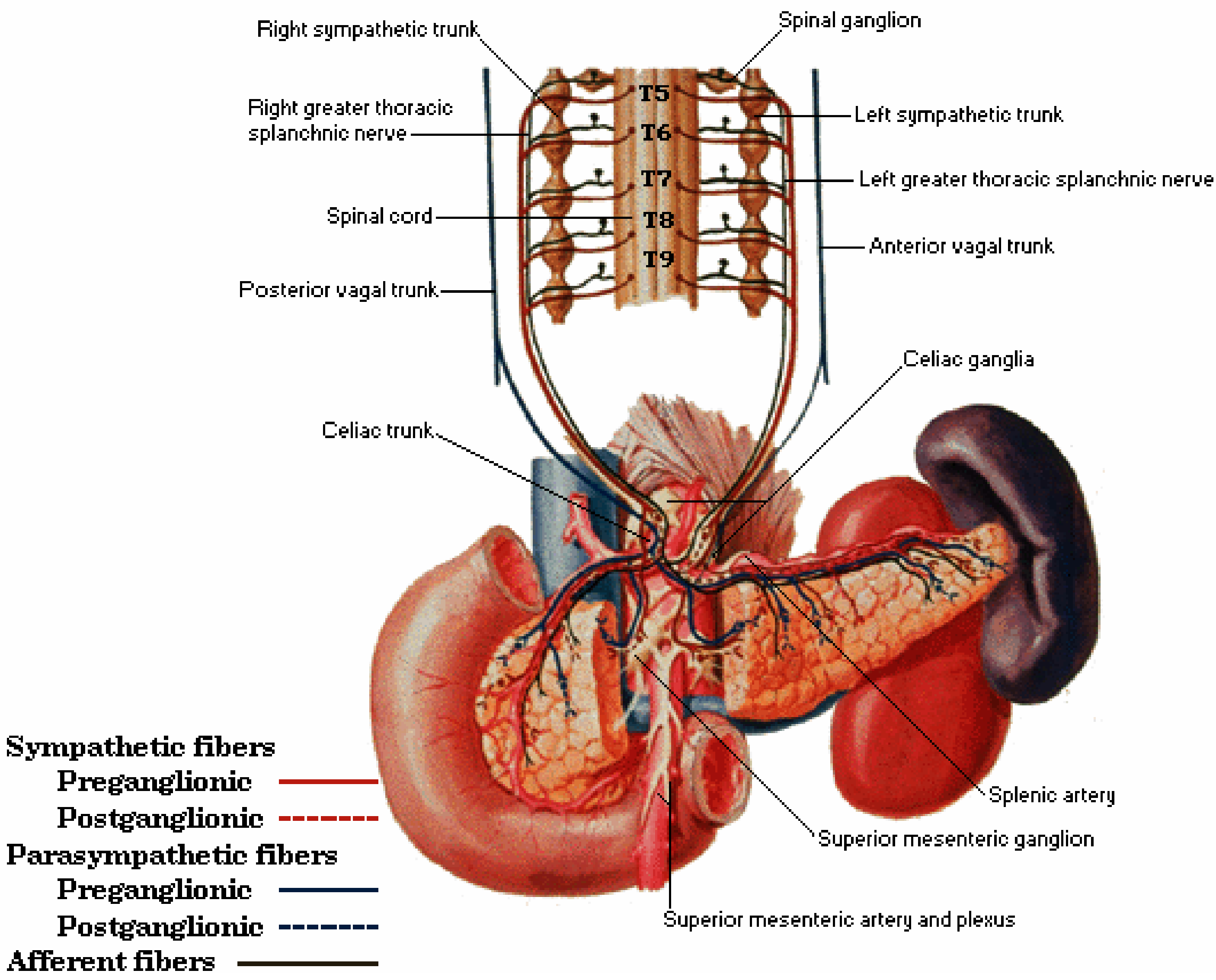
Nerve Fibers around Fine Branch of Hepatic Artery







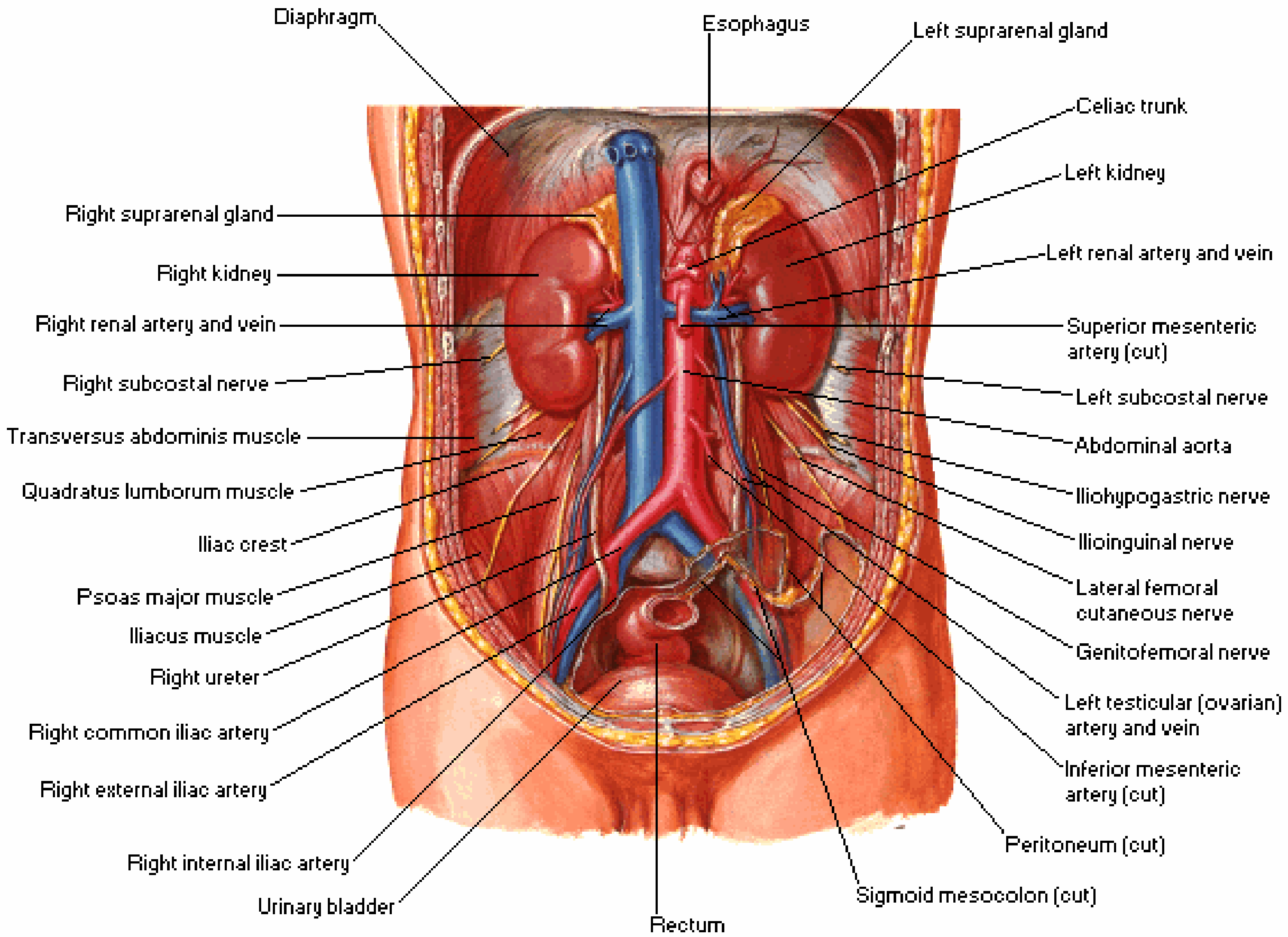
Schema



Right sympathetic trunk
Spinal ganglion
Right greater thoracic splanchnic nerve
T5
T6
T7
T8
T9
Left sympathetic trunk
Left greater thoracic splanchnic nerve
Spinal cord
Anterior vagal trunk
Posterior vagal trunk
Celiac ganglia
Celiac trunk
Splenic artery
Superior mesenteric ganglion
Superior mesenteric artery and plexus
Sympathetic fibers
Preganglionic
Postganglionic
Parasympathetic fibers
Preganglionic
Postganglionic
Afferent fibers

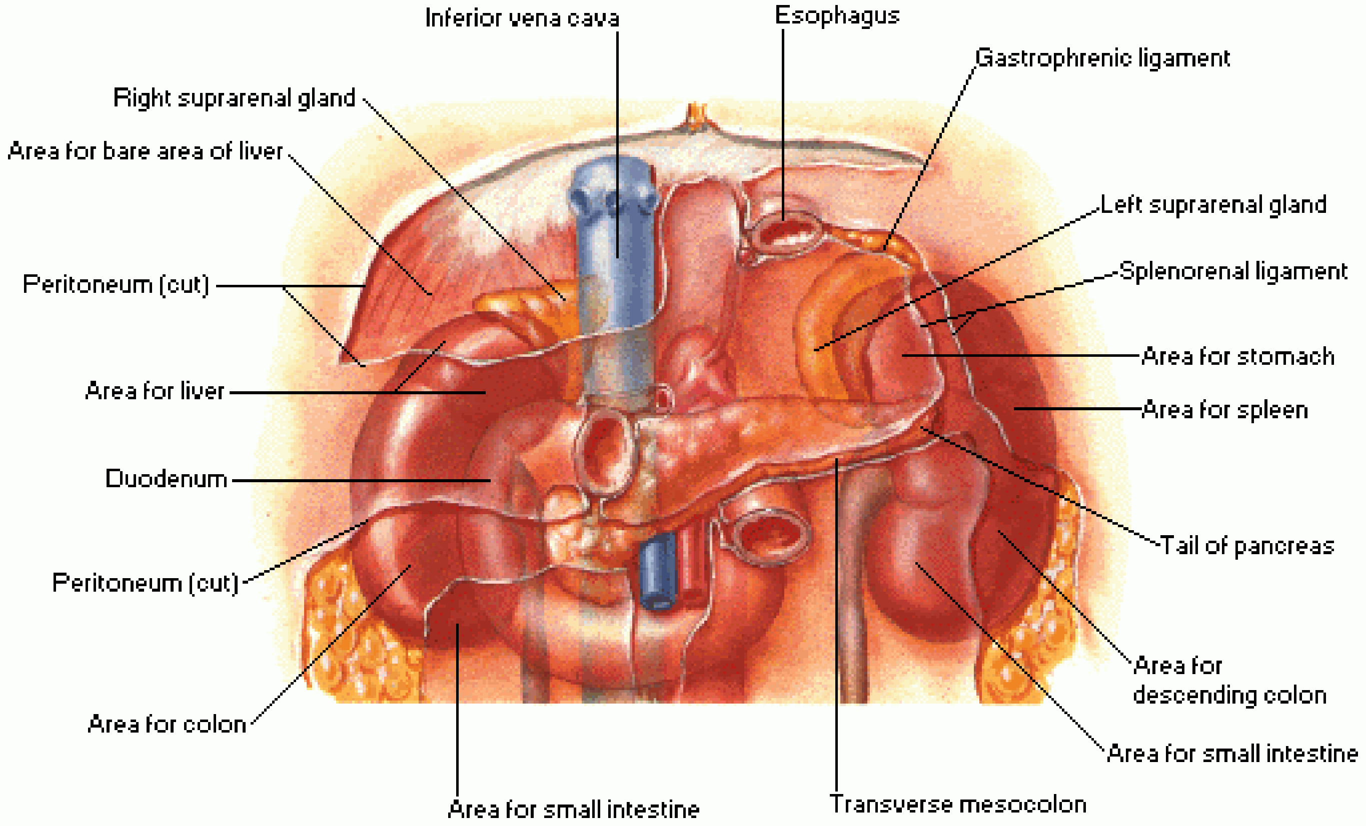

Sympathetic fibers
Preganglionic
Postganglionic
Parasympathetic fibers
Preganglionic
Postganglionic
Afferent fibers

Anterior View

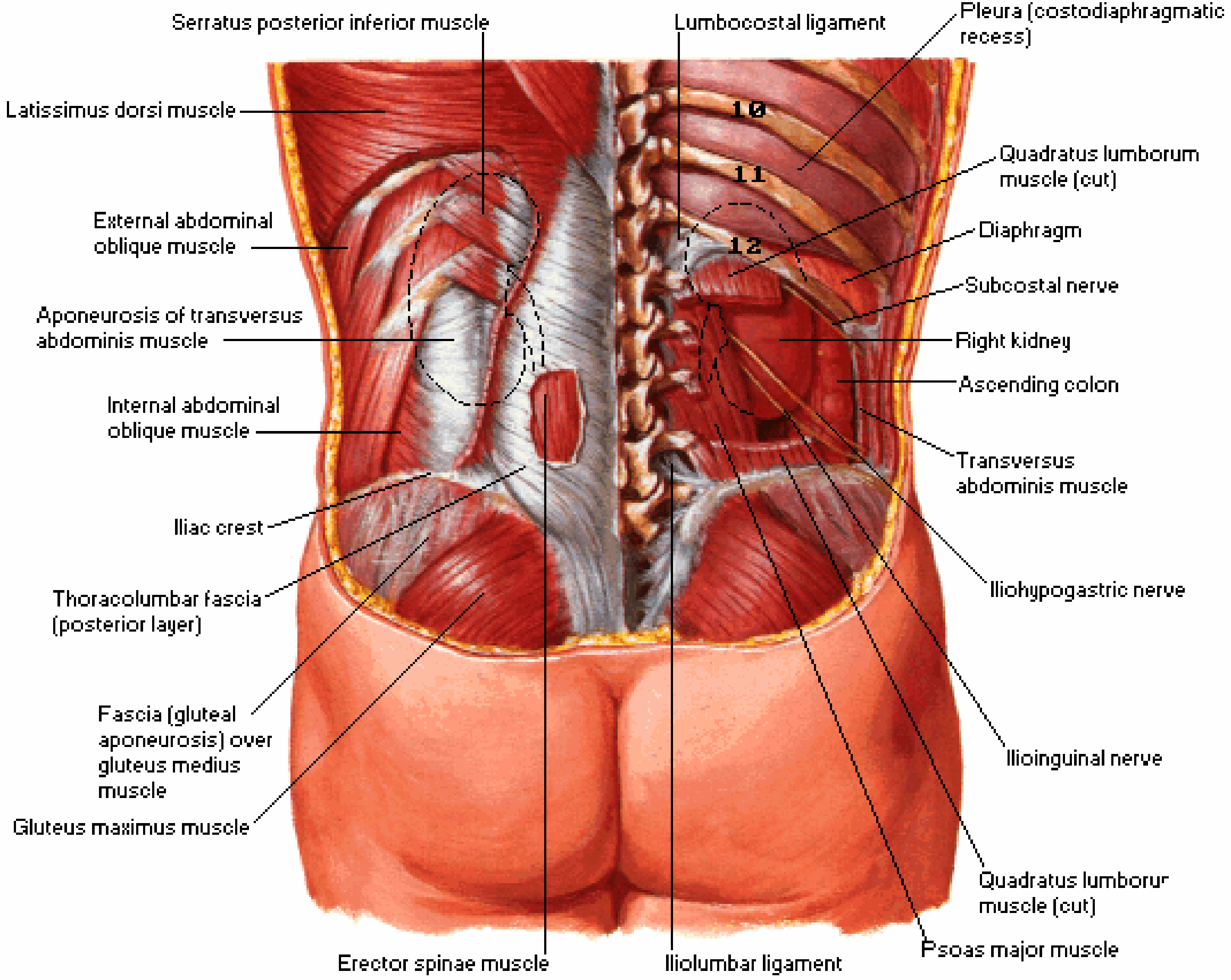


Kidneys in Situ

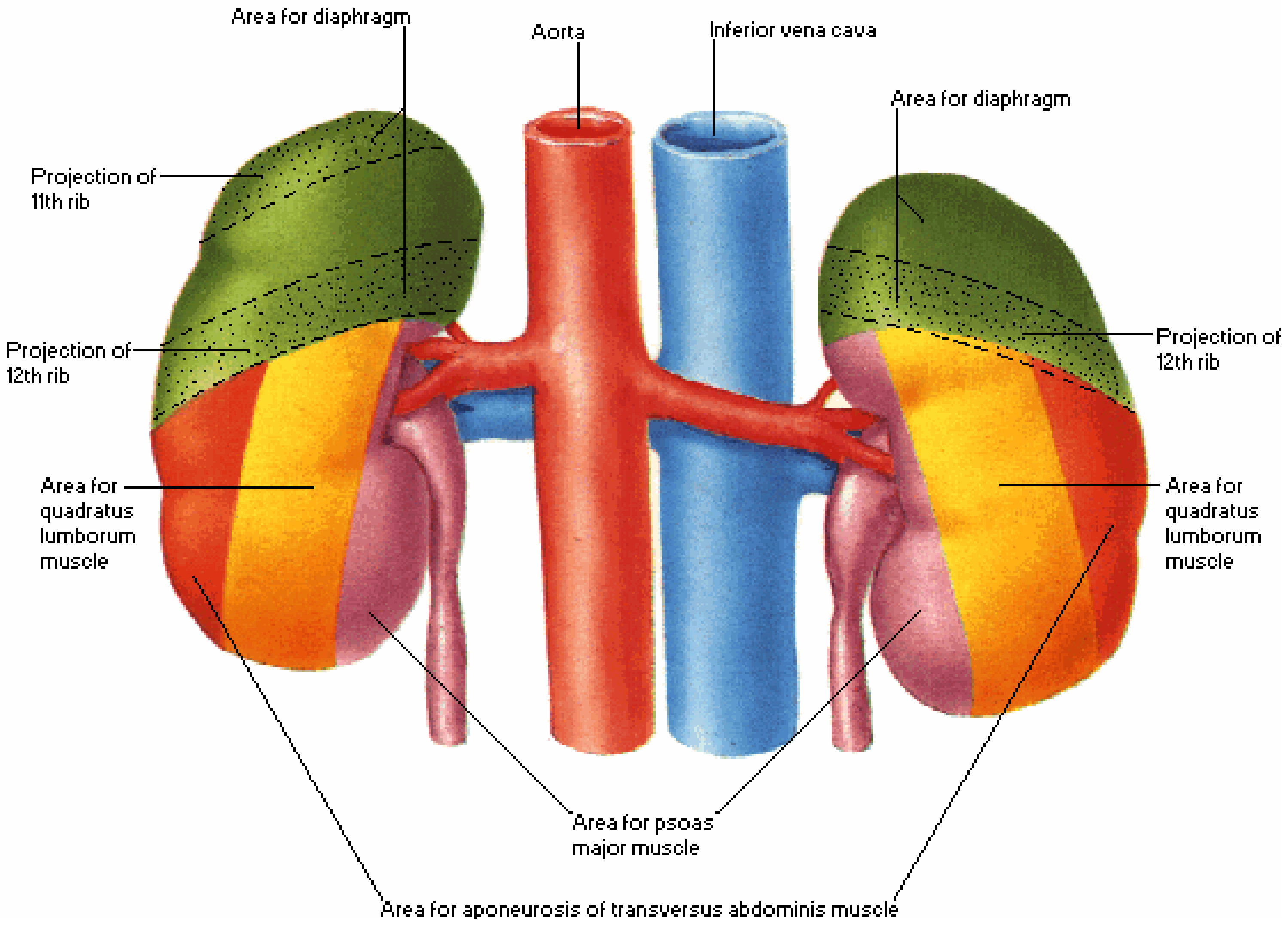
Anterior Relations of Kidneys



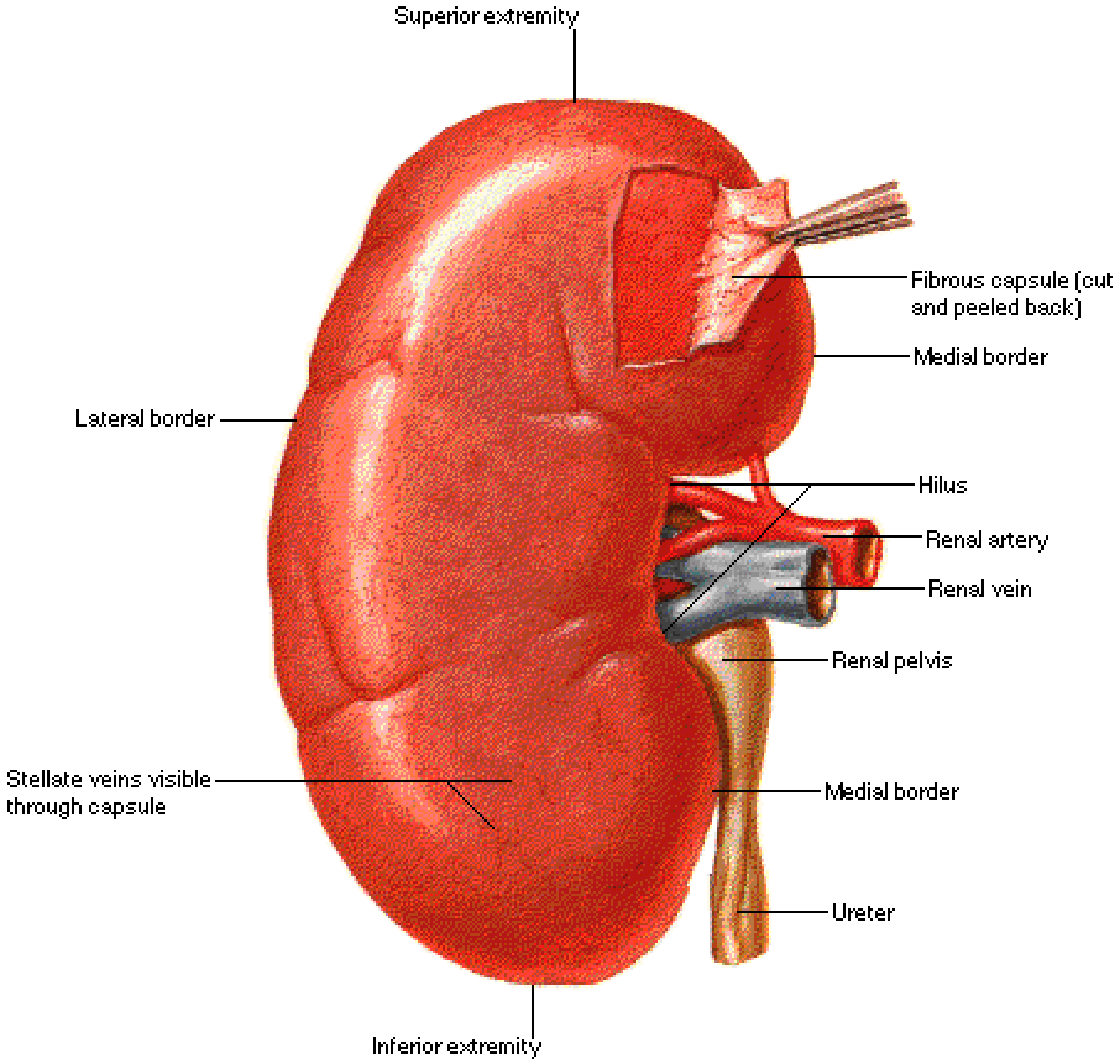
Posterior View



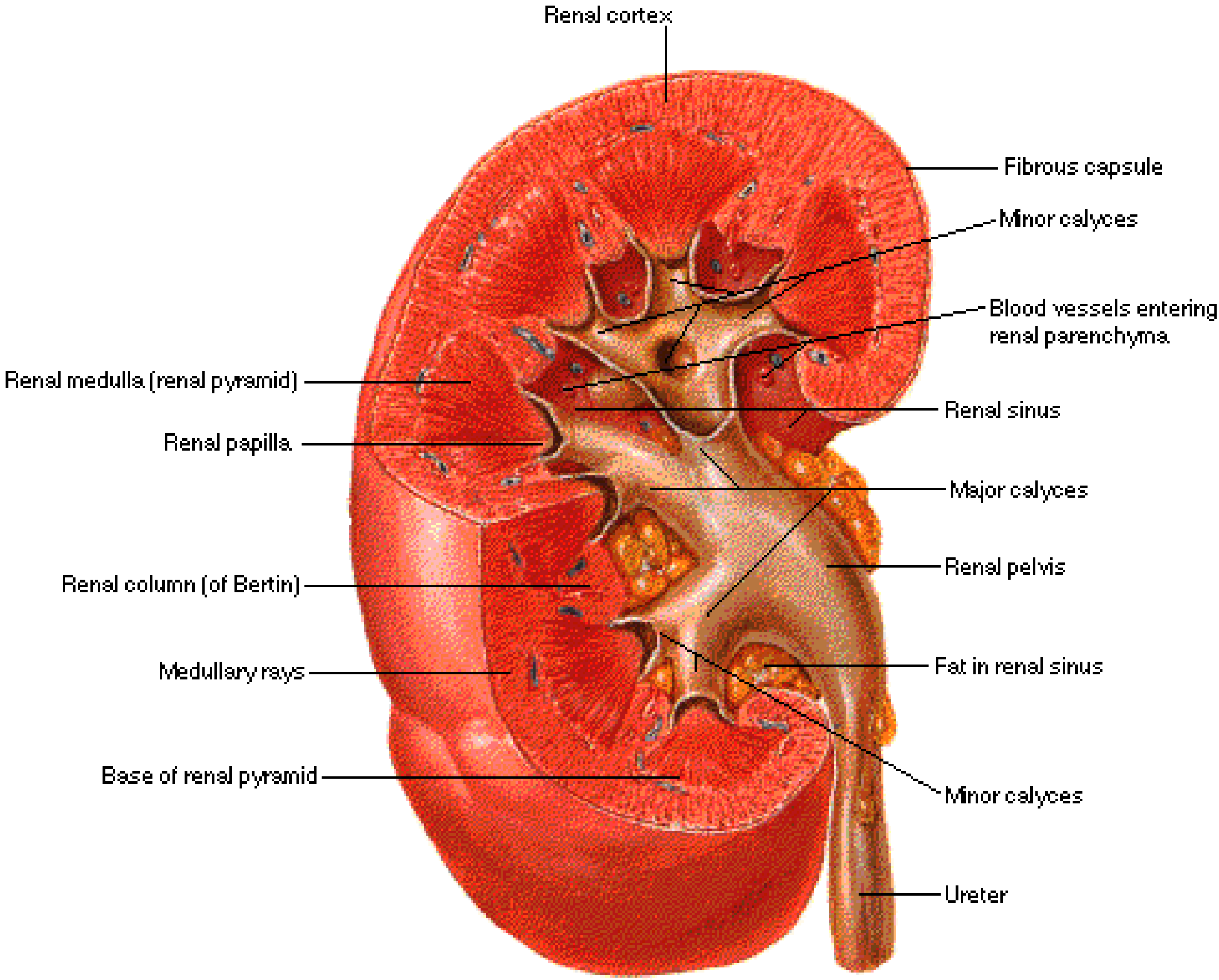
Posterior Relations of Kidneys

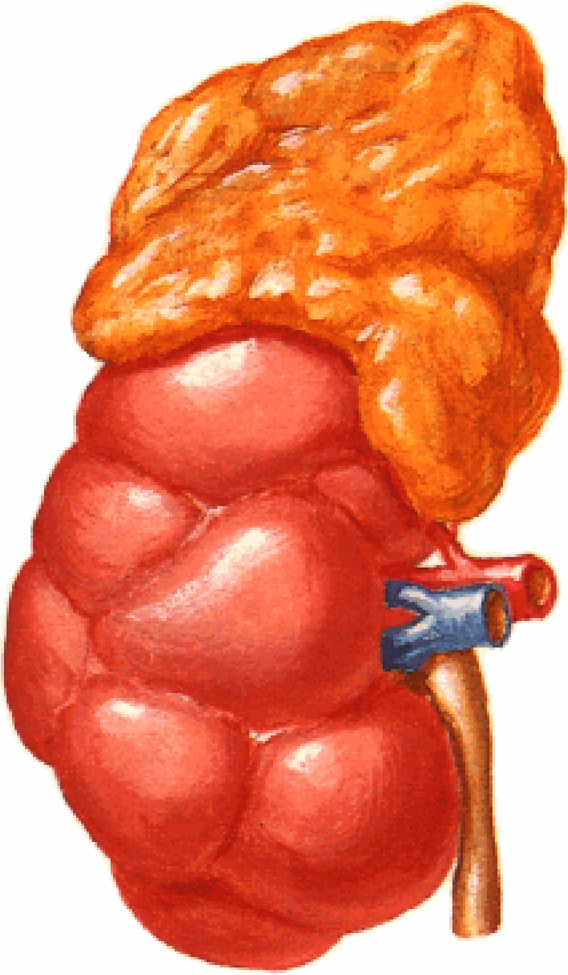


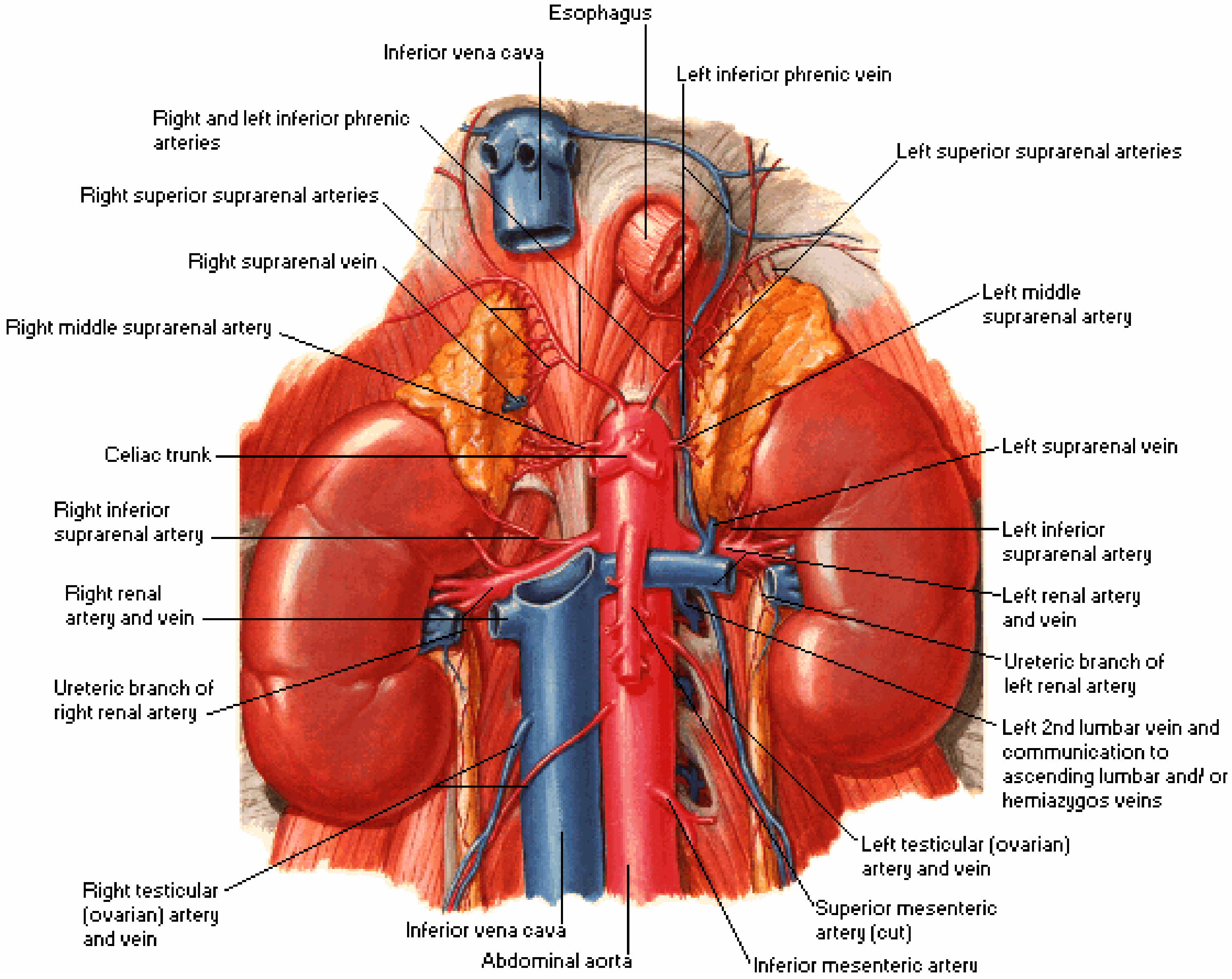
Anterior Surface of Right Kidney



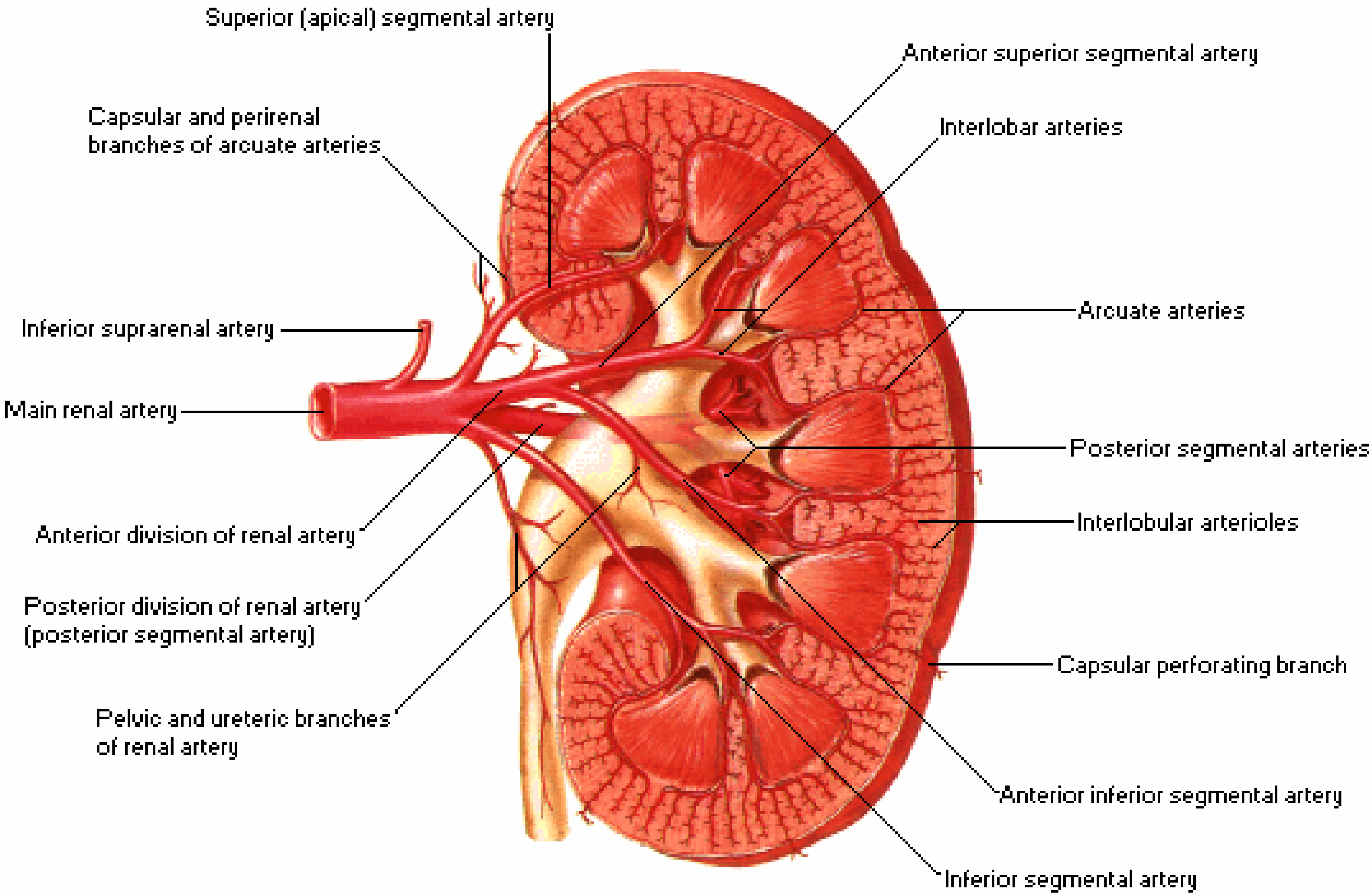
Right Kidney Sectioned in Several Planes

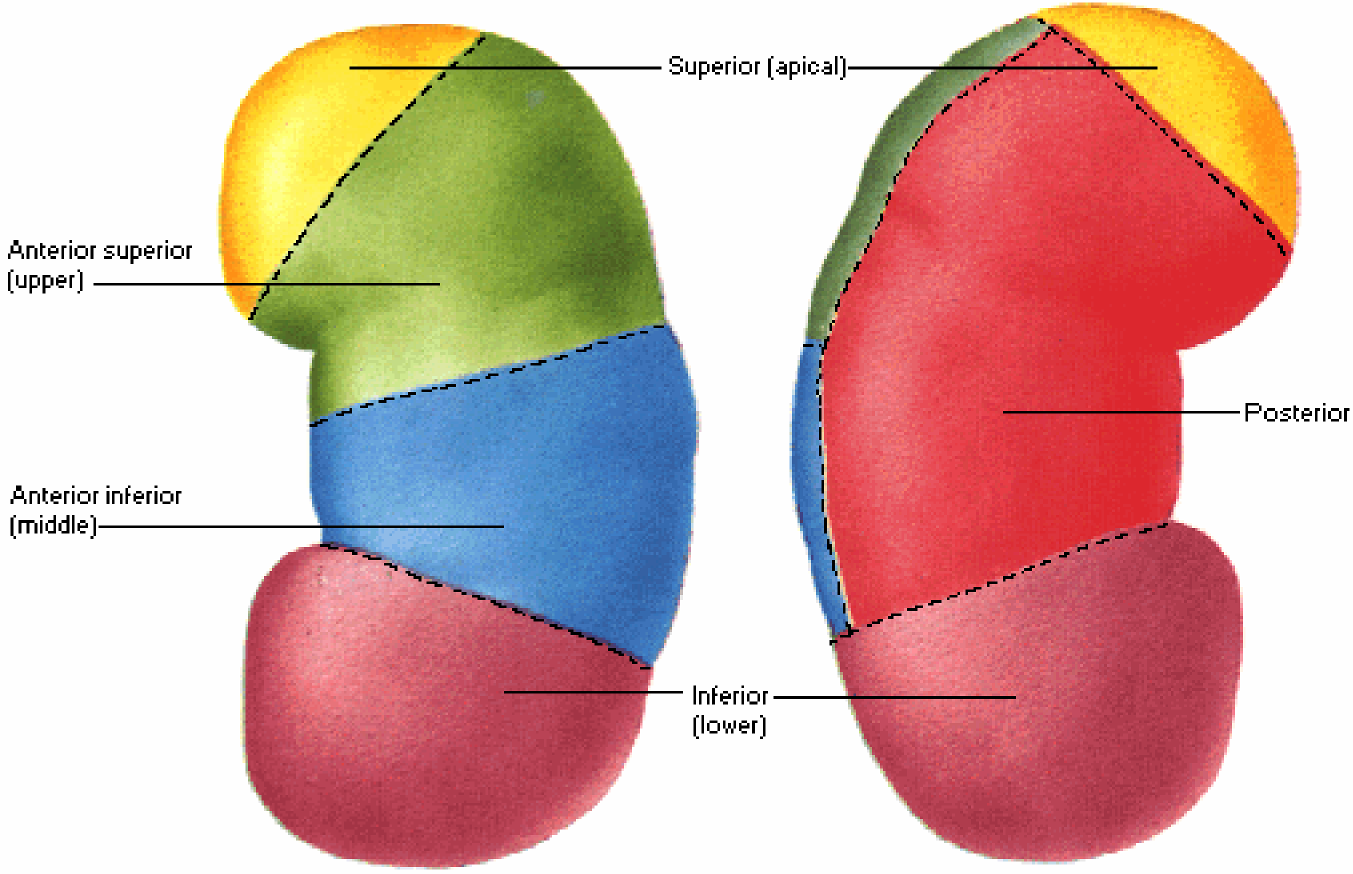





Esophagus
Inferior vena cava
Left inferior phrenic vein
Right and left inferior phrenic arteries
Left superior suprarenal arteries
Right superior suprarenal arteries
Right suprarenal vein
Left middle suprarenal artery
Right middle suprarenal artery
Celiac trunk
Left suprarenal vein
Right inferior suprarenal artery
Left inferior suprarenal artery
Right renal artery and vein
Left renal artery and vein
Ureteric branch of left renal artery
Ureteric branch of right renal artery
Left 2nd lumbar vein and communication to ascending lumbar and/ or hemiazygos veins
Left testicular (ovarian) artery and vein
Right testicular (ovarian) artery and vein
Superior mesenteric artery (cut)
Inferior vena cava
Abdominal aorta
Inferior mesenteric artery

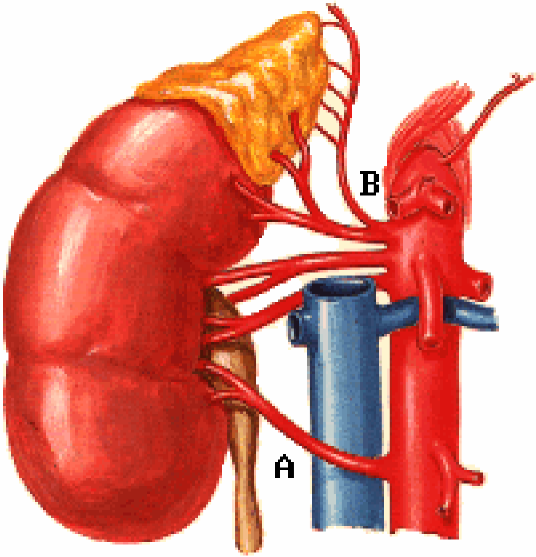
Frontal Section of Left Kidney - Anterior View





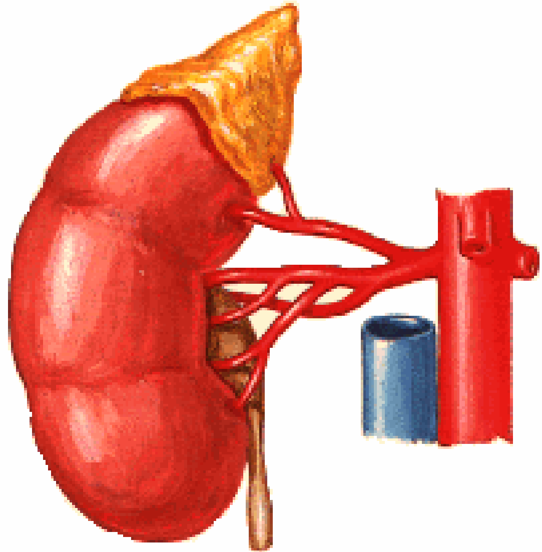
Anterior surface of left kidney

Posterior surface of left kidney

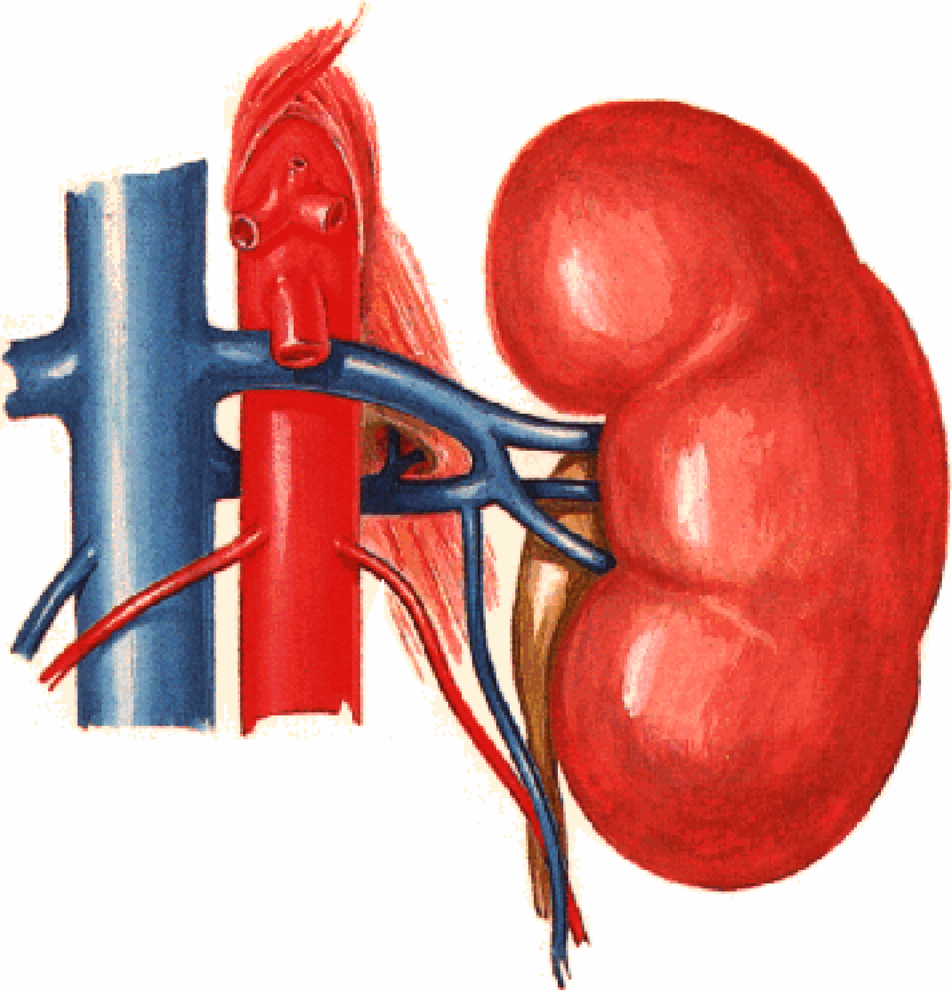


A) Low accessory right renal artery may pass in front of inferior vena cava instead of behind it

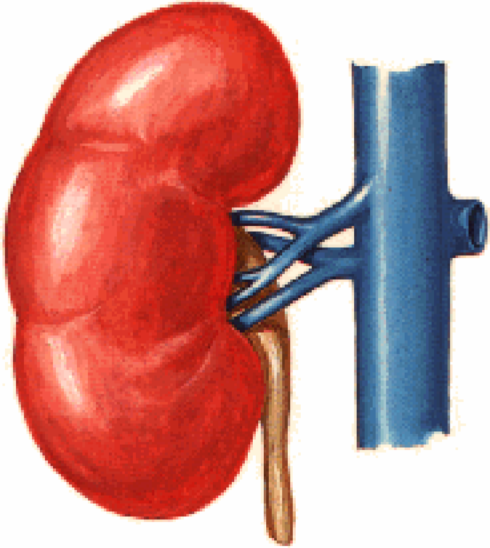
B) Inferior phrenic artery with suprarenal arteries may arise from renal artery



Proximal subdivision of renal artery

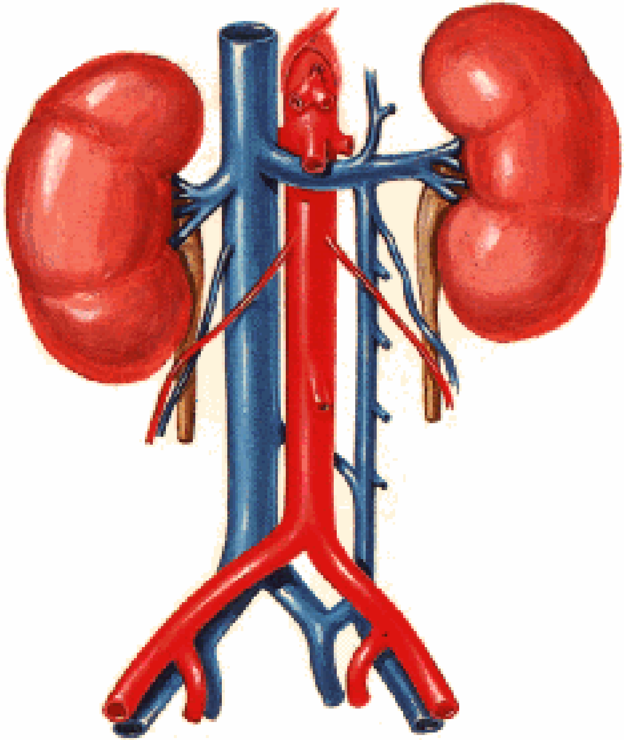


Double renal vein may form ring around aorta

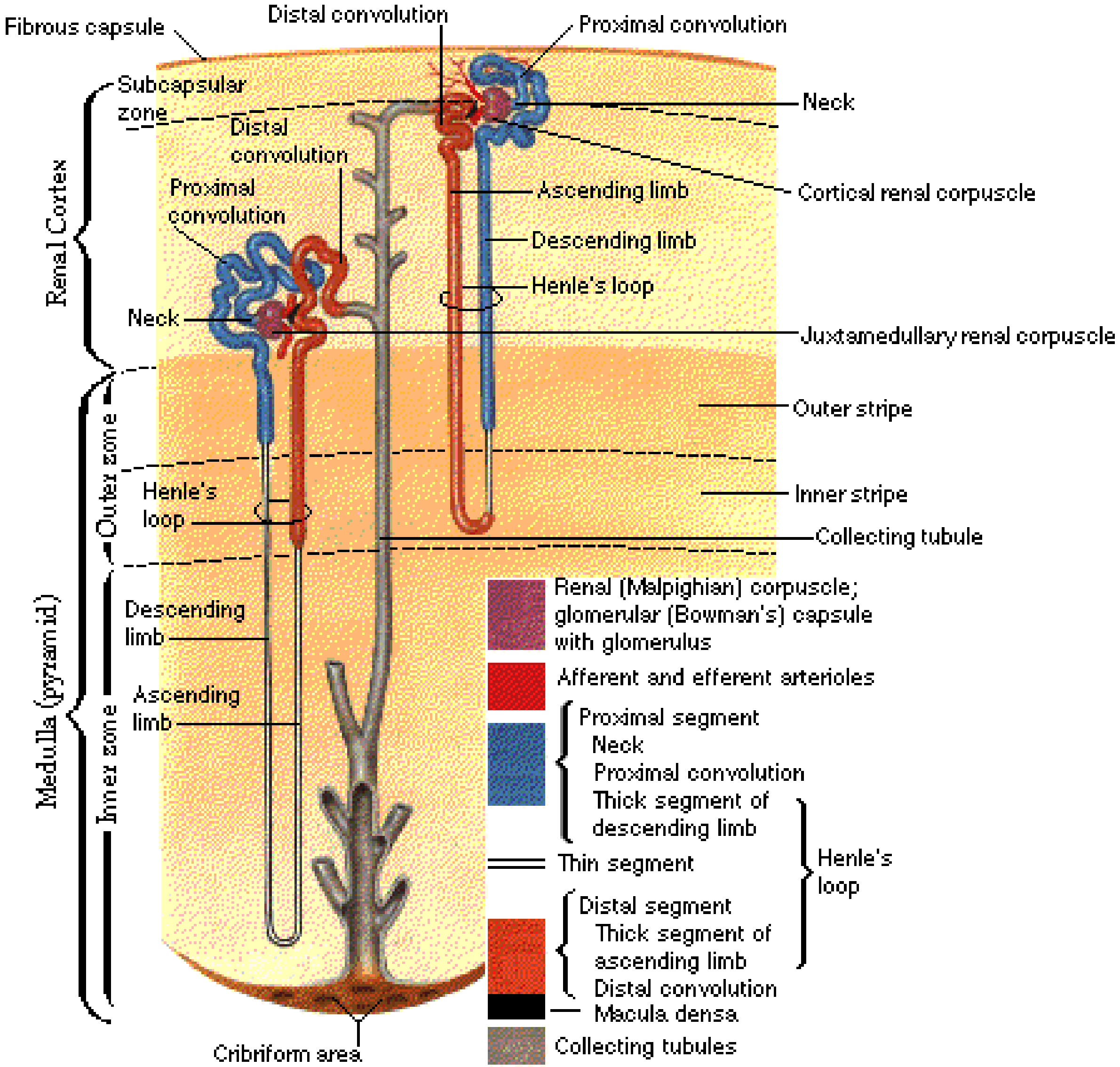


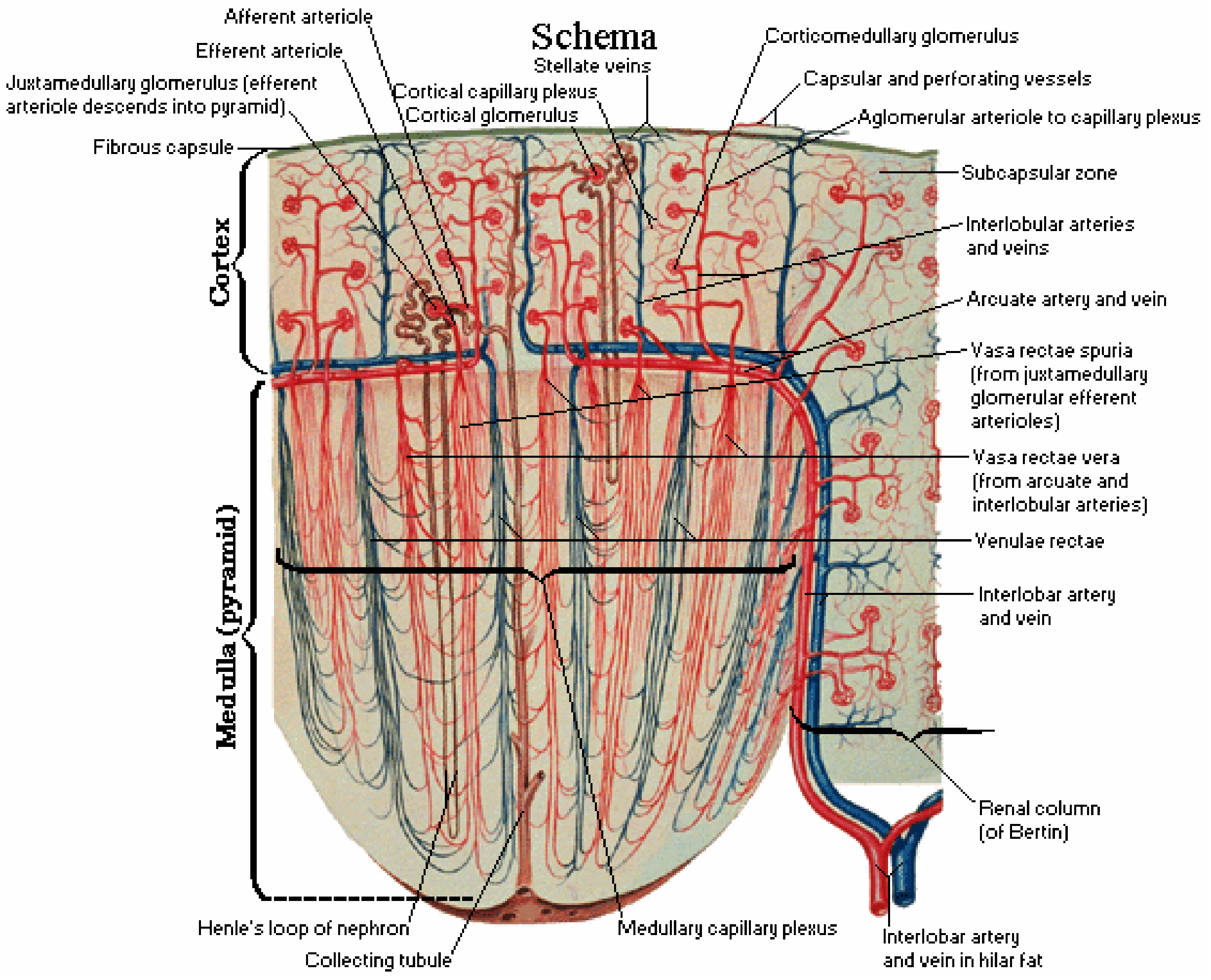
Multiple renal veins

Persistent left inferior vena cava
may join left renal vein



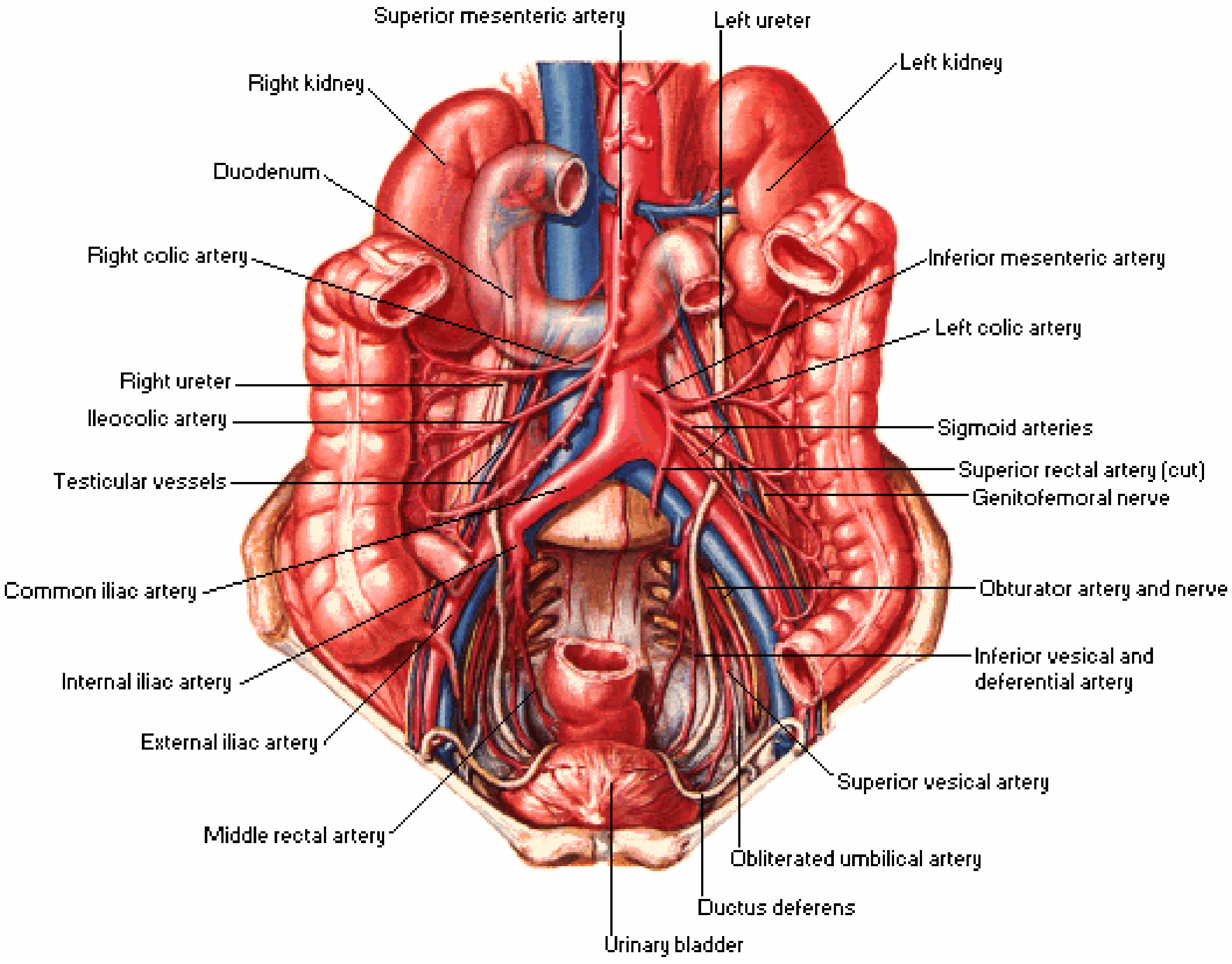
Nephron and Collecting Tubule Schema





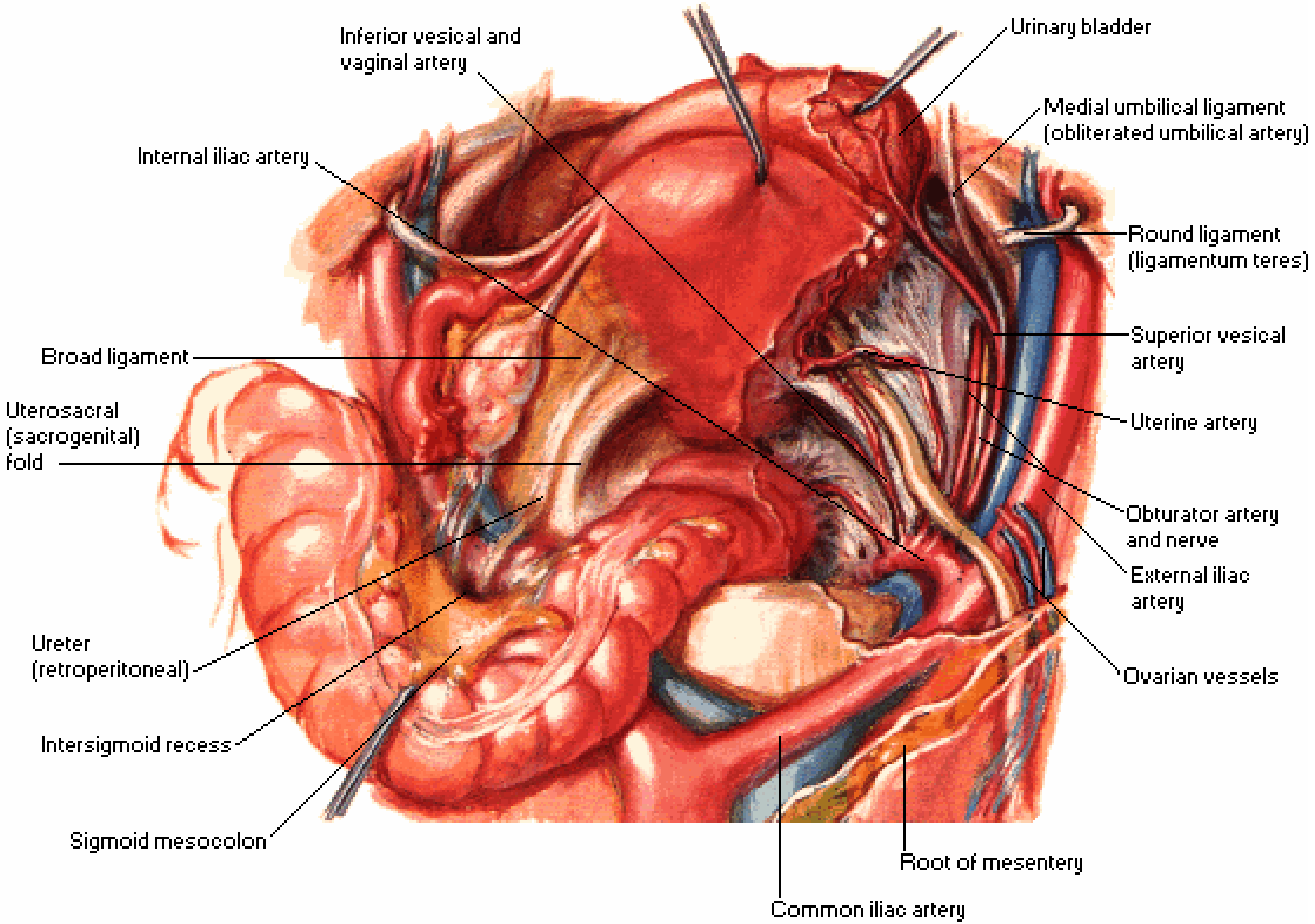
Schema
Afferent arteriole
Efferent arteriole
Juxtamedullary glomerulus (efferent arteriole descends into pyramid)
Stellate veins
Cortical capillary plexus
Cortical glomerulus
Corticomedullary glomerulus
Capsular and perforating vessels
Aglomerular arteriole to capillary plexus
Fibrous capsule
Subcapsular zone
Cortex
Interlobular arteries and veins
Arcuate artery and vein
Vasa rectae spuria (from juxtamedullary glomerular efferent arterioles)
Vasa rectae vera (from arcuate and interlobular arteries)
Venulae rectae
Medulla (pyramid)
Interlobar artery and vein
Renal column (of Bertin)
Henle's loop of nephron
Collecting tubule
Medullary capillary plexus
Interlobar artery and vein in hilar fat

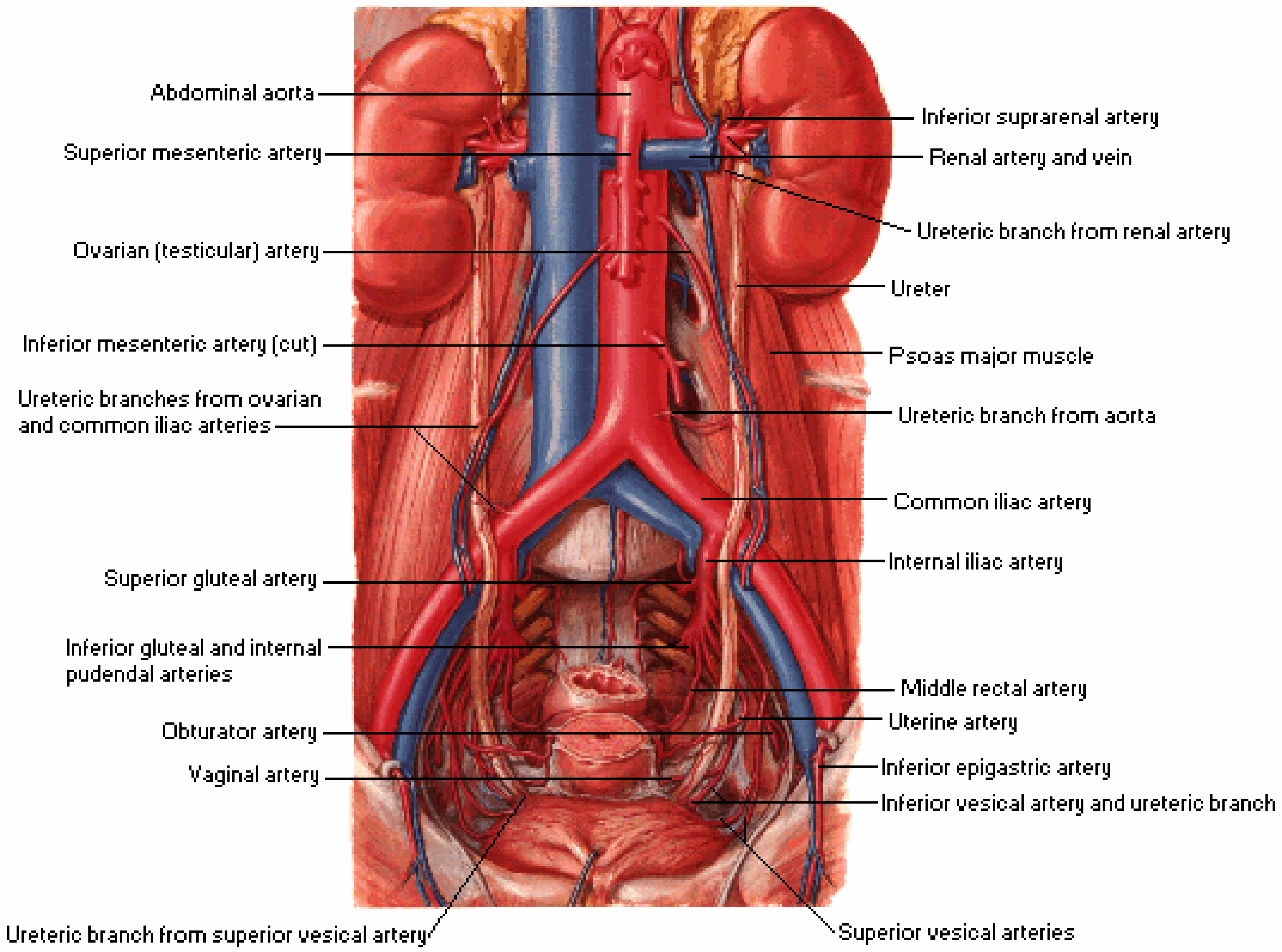
Anterior View



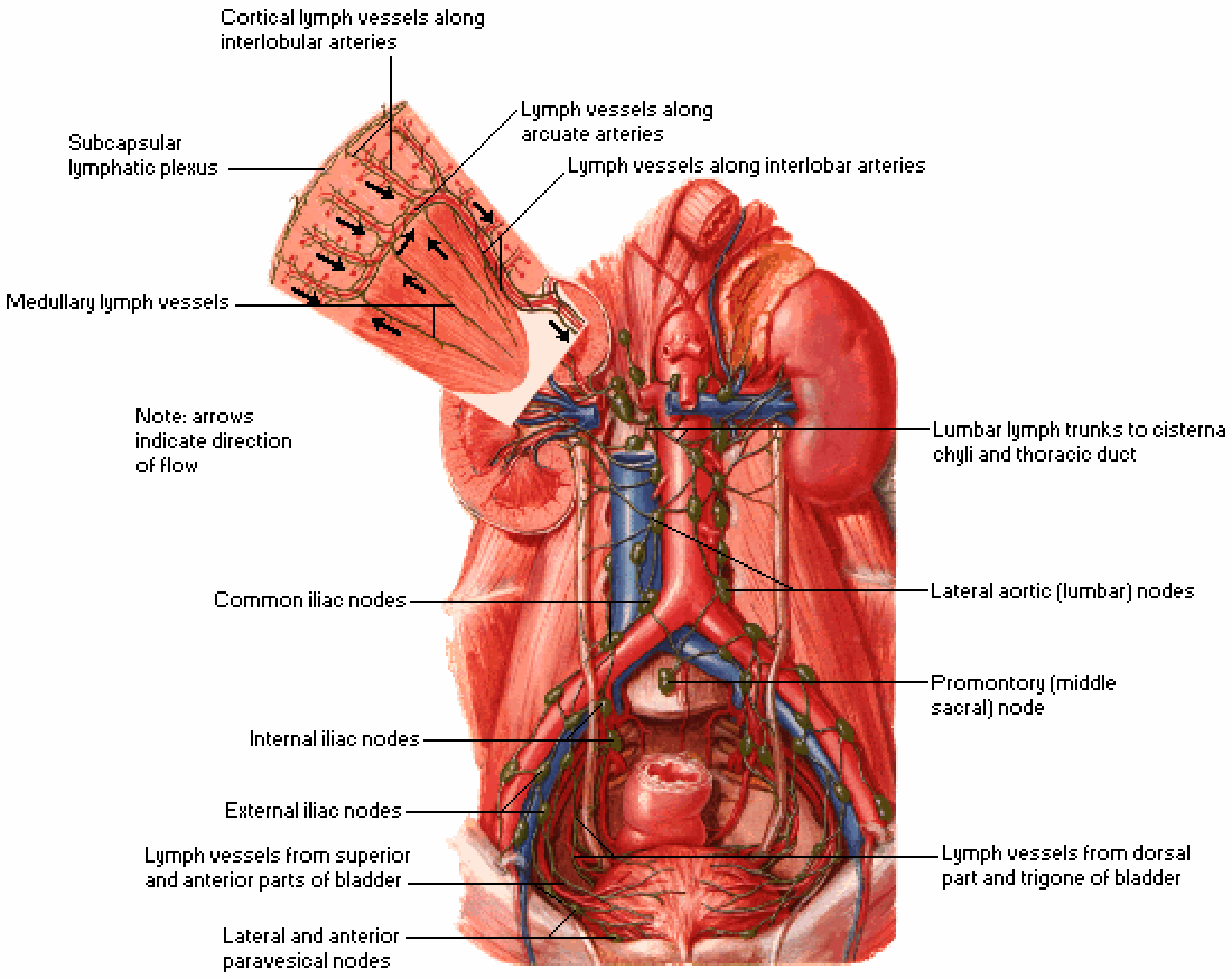


Superior View

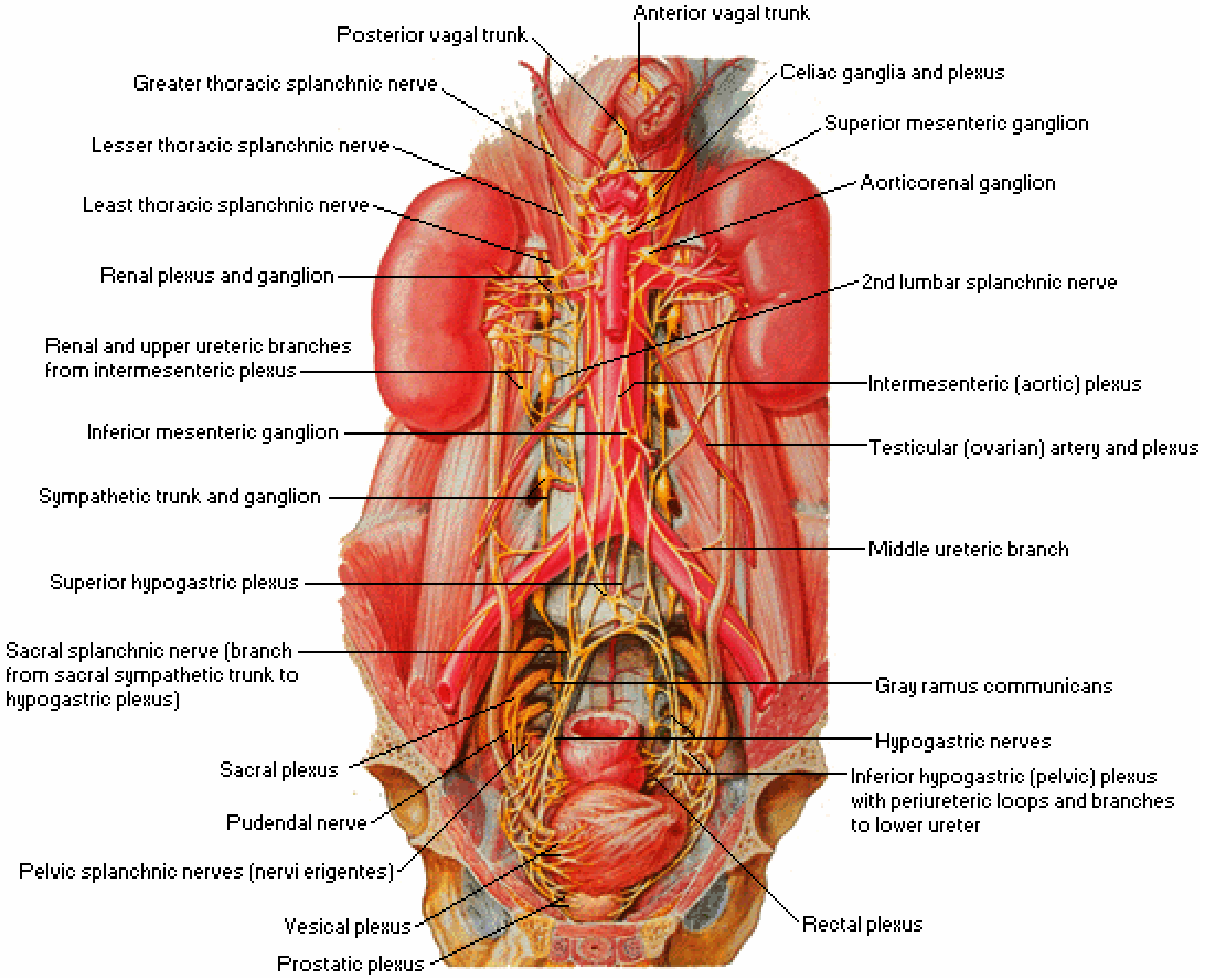




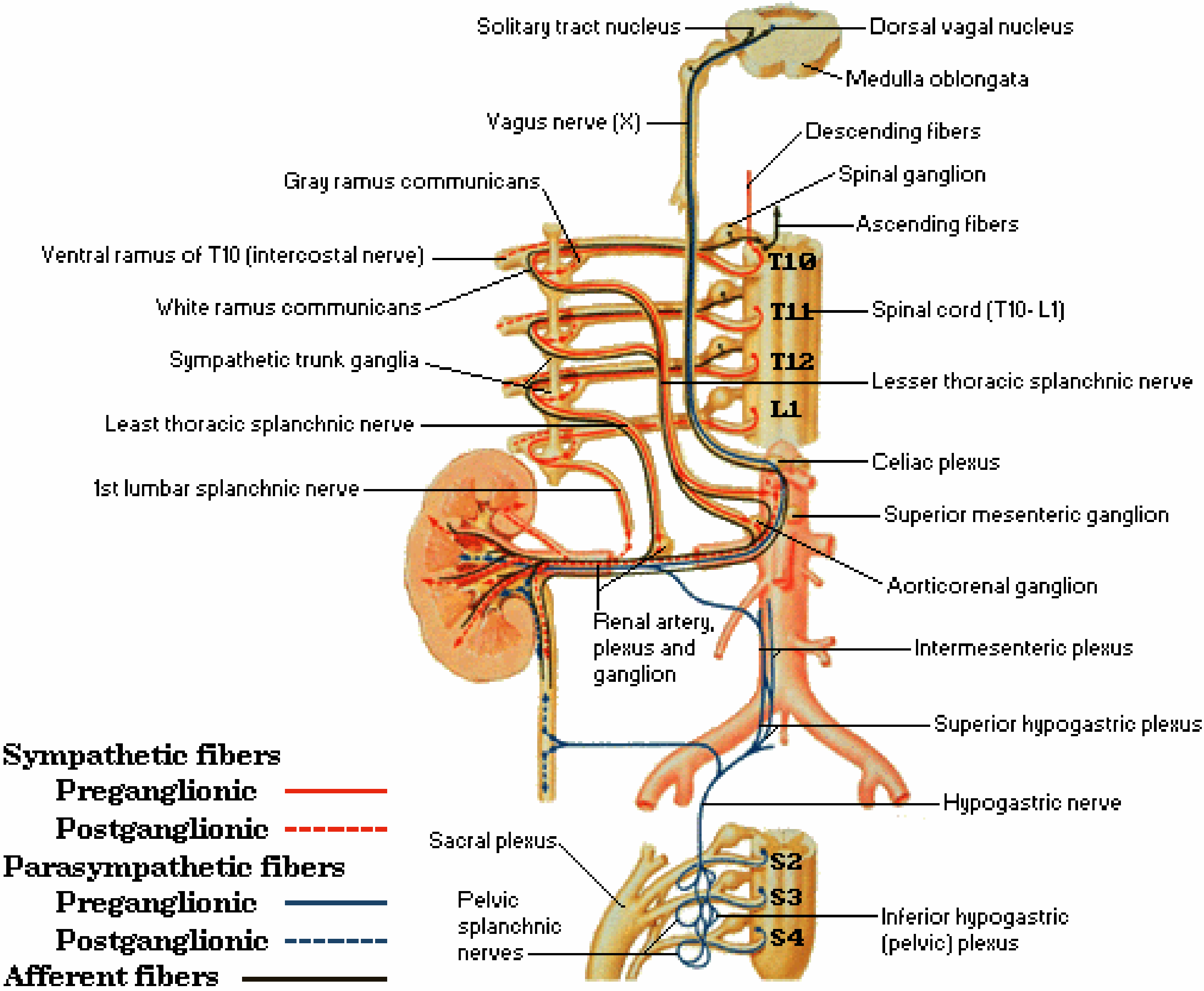
Abdominal aorta
Superior mesenteric artery
Ovarian (testicular) artery
Inferior mesenteric artery (cut)
Ureteric branches from ovarian and common iliac arteries
Superior gluteal artery
Inferior gluteal and internal pudendal arteries
Obturator artery
Vaginal artery
Ureteric branch from superior vesical artery
Inferior suprarenal artery
Renal artery and vein
Ureteric branch from renal artery
Ureter
Psoas major muscle
Ureteric branch from aorta
Common iliac artery
Internal iliac artery
Middle rectal artery
Uterine artery
Inferior epigastric artery
Inferior vesical artery and ureteric branch
Superior vesical arteries



Cortical lymph vessels along interlobular arteries
Lymph vessels along arcuate arteries
Subcapsular lymphatic plexus
Lymph vessels along interlobar arteries
Medullary lymph vessels
Note: arrows indicate direction of flow
Lumbar lymph trunks to cisterna chyli and thoracic duct
Lateral aortic (lumbar) nodes
Common iliac nodes
Promontory (middle sacral) node
Internal iliac nodes
External iliac nodes
Lymph vessels from superior and anterior parts of bladder
Lymph vessels from dorsal part and trigone of bladder
Lateral and anterior paravesical nodes

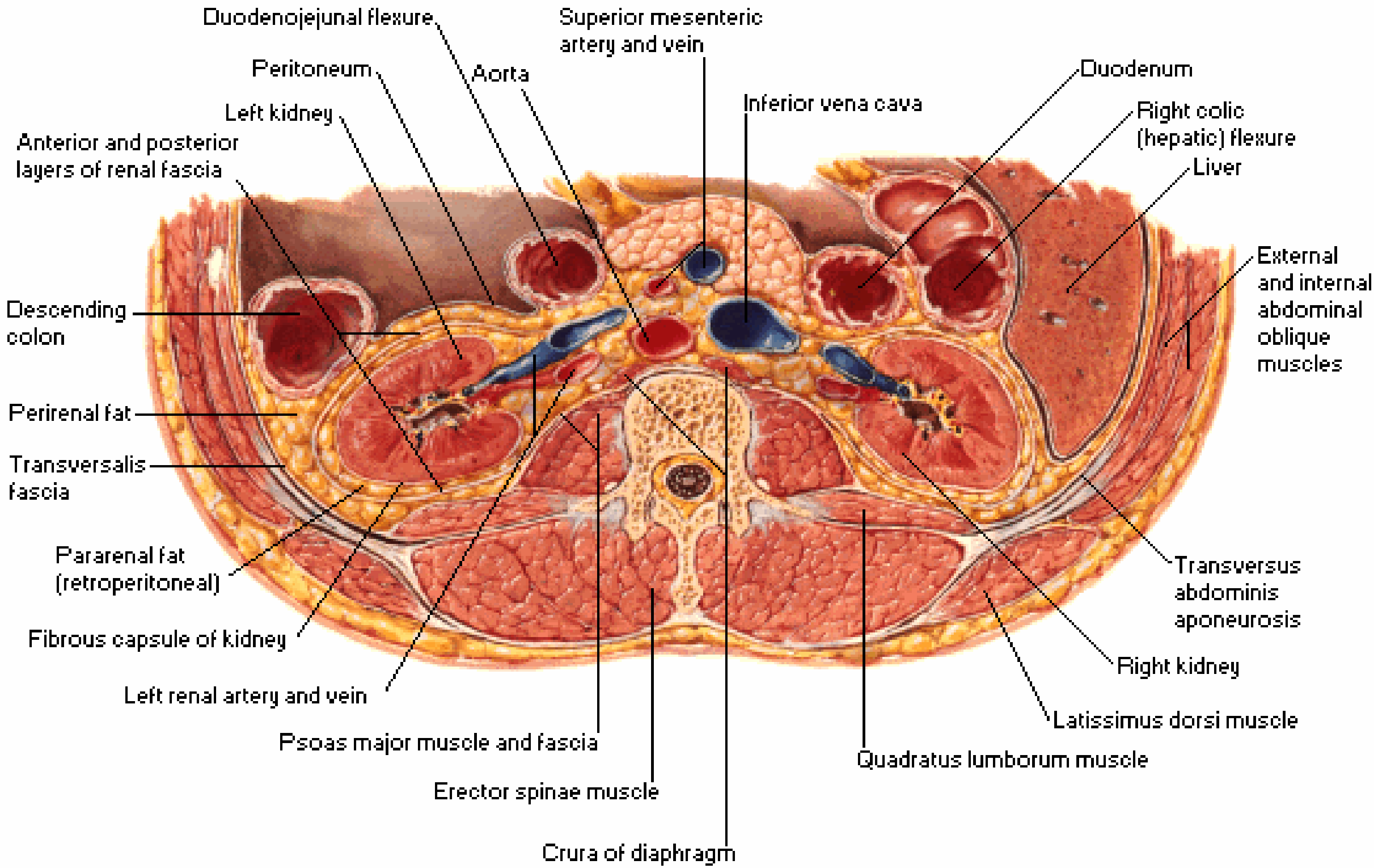

Anterior vagal trunk
Posterior vagal trunk
Celiac ganglia and plexus
Greater thoracic splanchnic nerve
Superior mesenteric ganglion
Lesser thoracic splanchnic nerve
Aorticorenal ganglion
Least thoracic splanchnic nerve
Renal plexus and ganglion
2nd lumbar splanchnic nerve
Renal and upper ureteric branches
from intermesenteric plexus
Intermesenteric (aortic) plexus
Inferior mesenteric ganglion
Testicular (ovarian) artery and plexus
Sympathetic trunk and ganglion
Middle ureteric branch
Superior hypogastric plexus
Sacral splanchnic nerve (branch
from sacral sympathetic trunk to
hypogastric plexus)
Gray ramus communicans
Hypogastric nerves
Sacral plexus
Inferior hypogastric (pelvic) plexus
with periureteric loops and branches
to lower ureter
Pudendal nerve
Pelvic splanchnic nerves (nervi erigentes)
Vesical plexus
Rectal plexus
Prostatic plexus

Schema



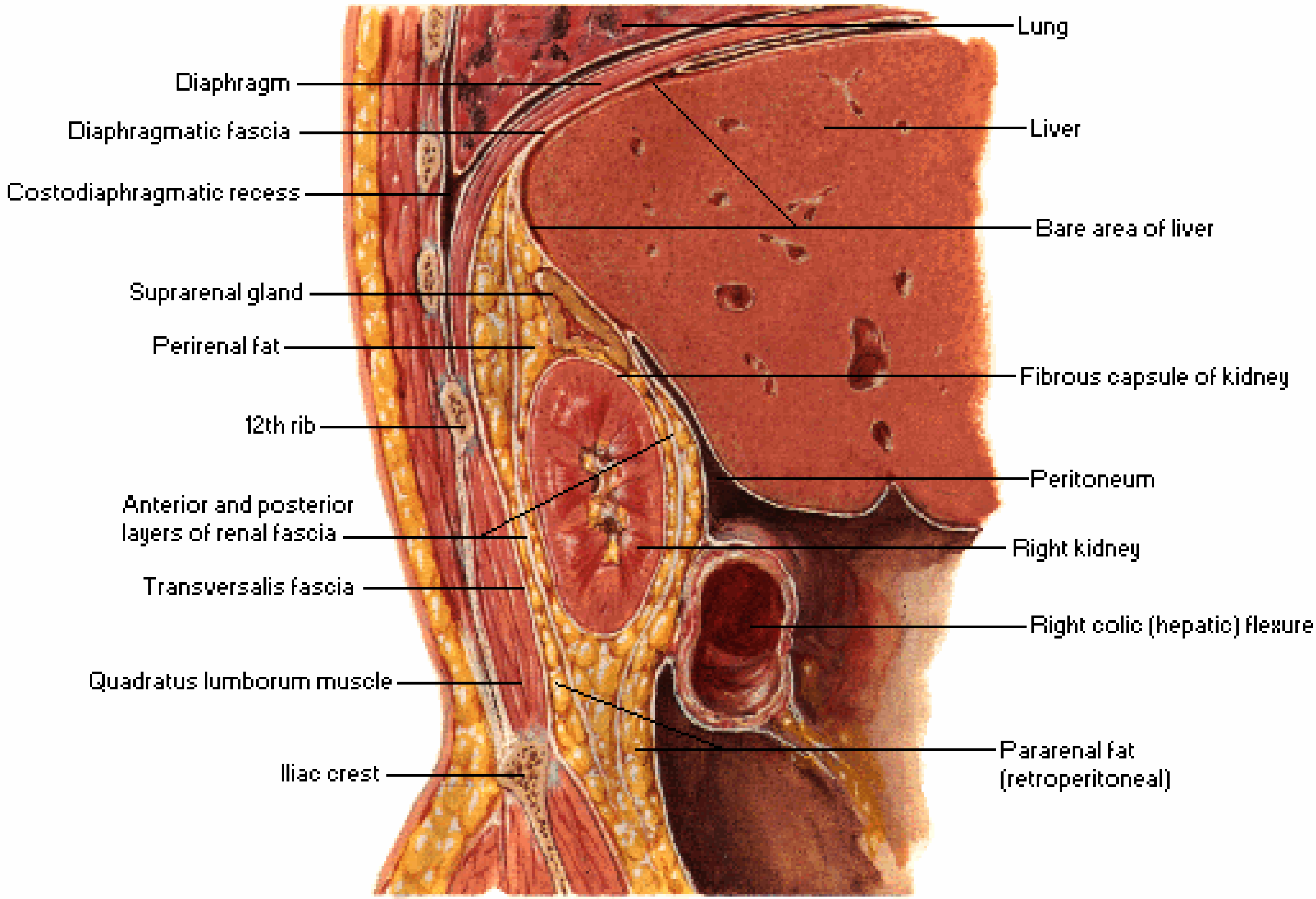
Solitary tract nucleus
Dorsal vagal nucleus
Medulla oblongata
Vagus nerve (X)
Descending fibers
Spinal ganglion
Gray ramus communicans
Ascending fibers
Ventral ramus of T10 (intercostal nerve)
T10
White ramus communicans
T11
Spinal cord (T10- L1)
Sympathetic trunk ganglia
T12
Lesser thoracic splanchnic nerve
Least thoracic splanchnic nerve
L1
Celiac plexus
1st lumbar splanchnic nerve
Superior mesenteric ganglion
Aorticorenal ganglion
Renal artery, plexus and ganglion
Intermesenteric plexus
Superior hypogastric plexus
Sympathetic fibers
Preganglionic
Postganglionic
Parasympathetic fibers
Preganglionic
Postganglionic
Afferent fibers
Hypogastric nerve
Sacral plexus
S2
S3
Pelvic splanchnic nerves
S4
Inferior hypogastric (pelvic) plexus

Transverse Section through 2nd Lumbar Vertebra

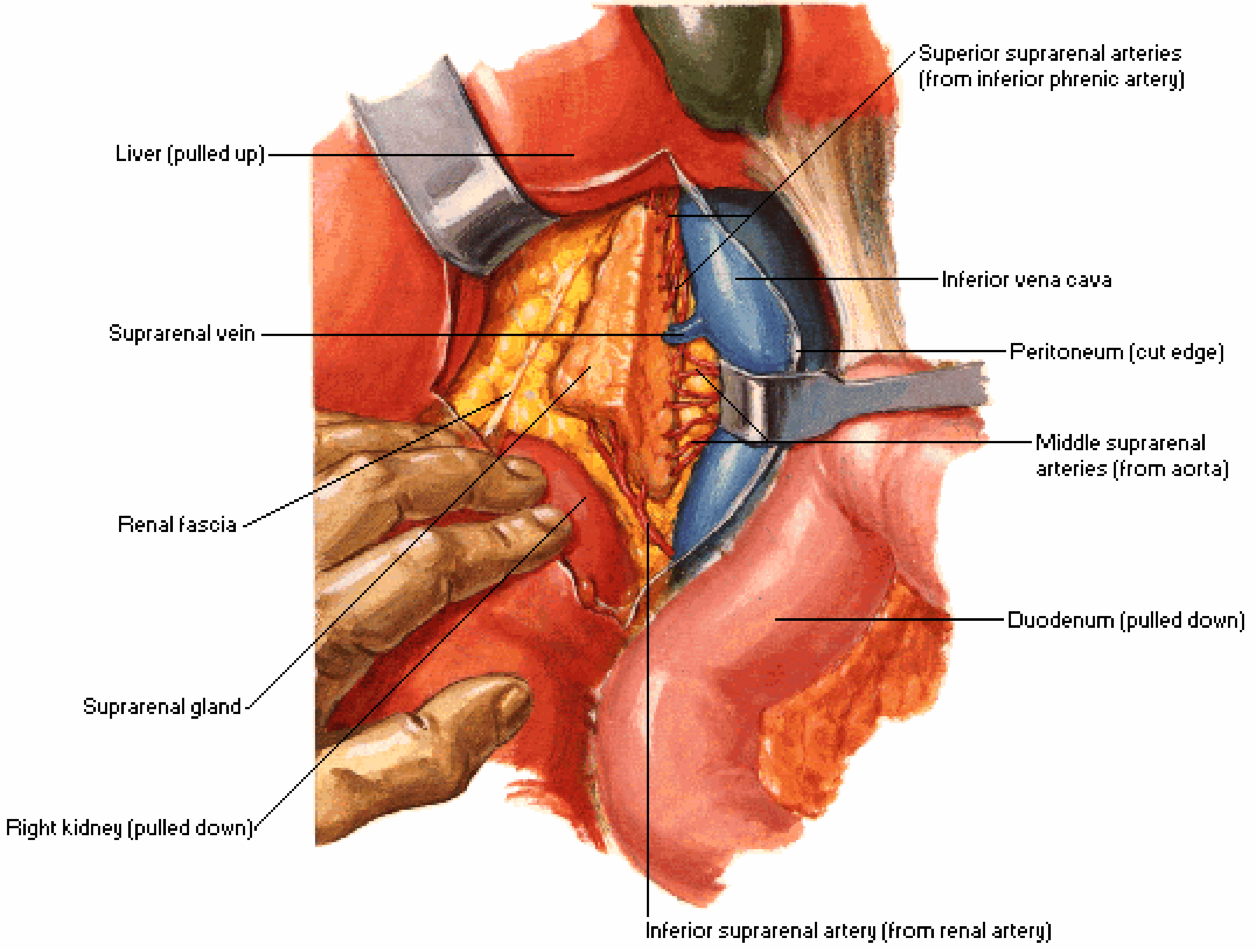


Demonstrates horizontal disposition of fascia

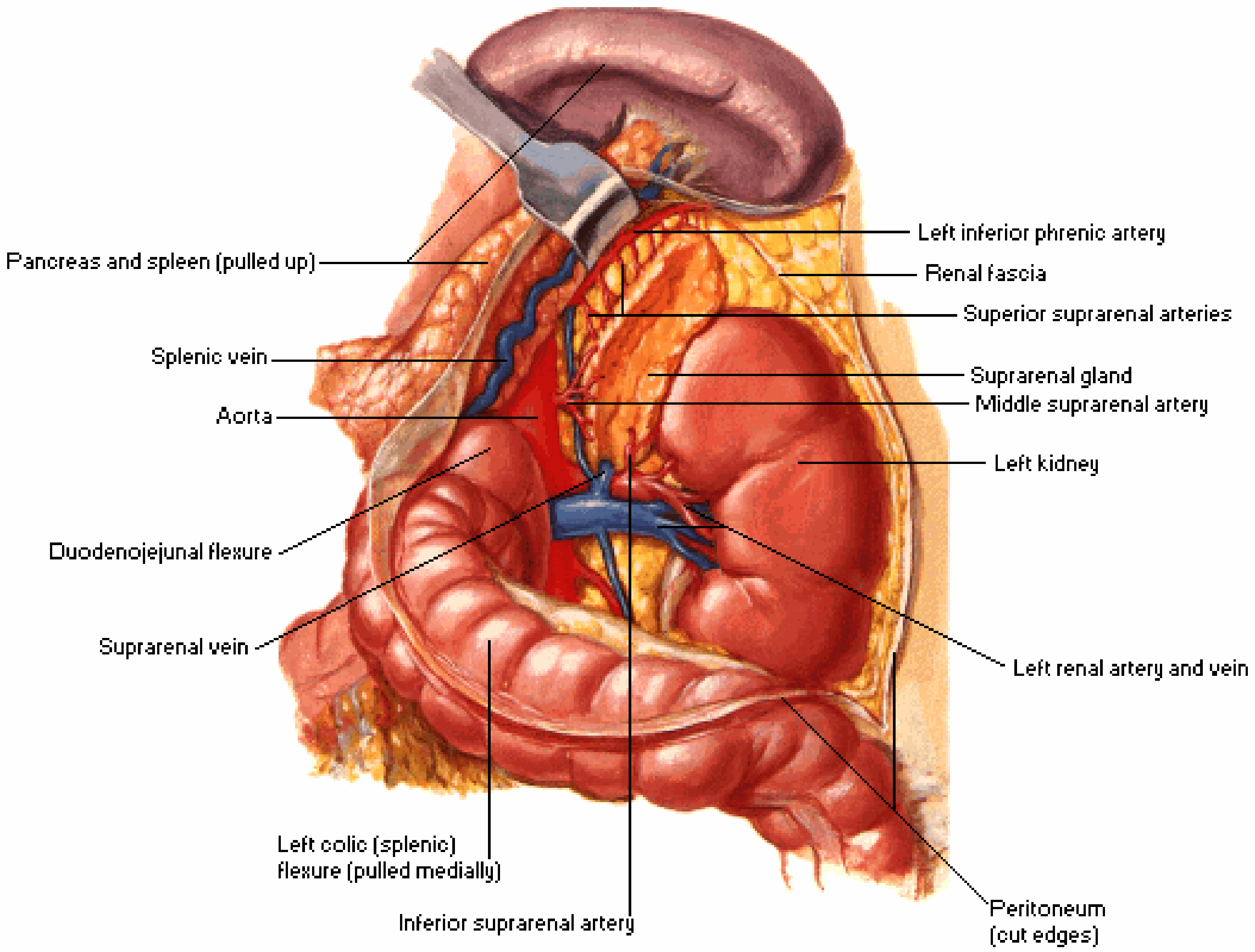
Sagittal Section through Right Kidney



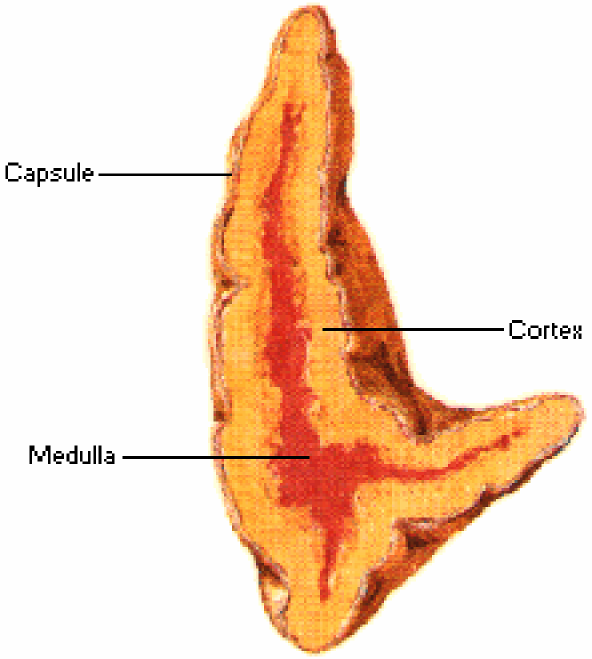
Demonstrates vertical disposition of renal fascia



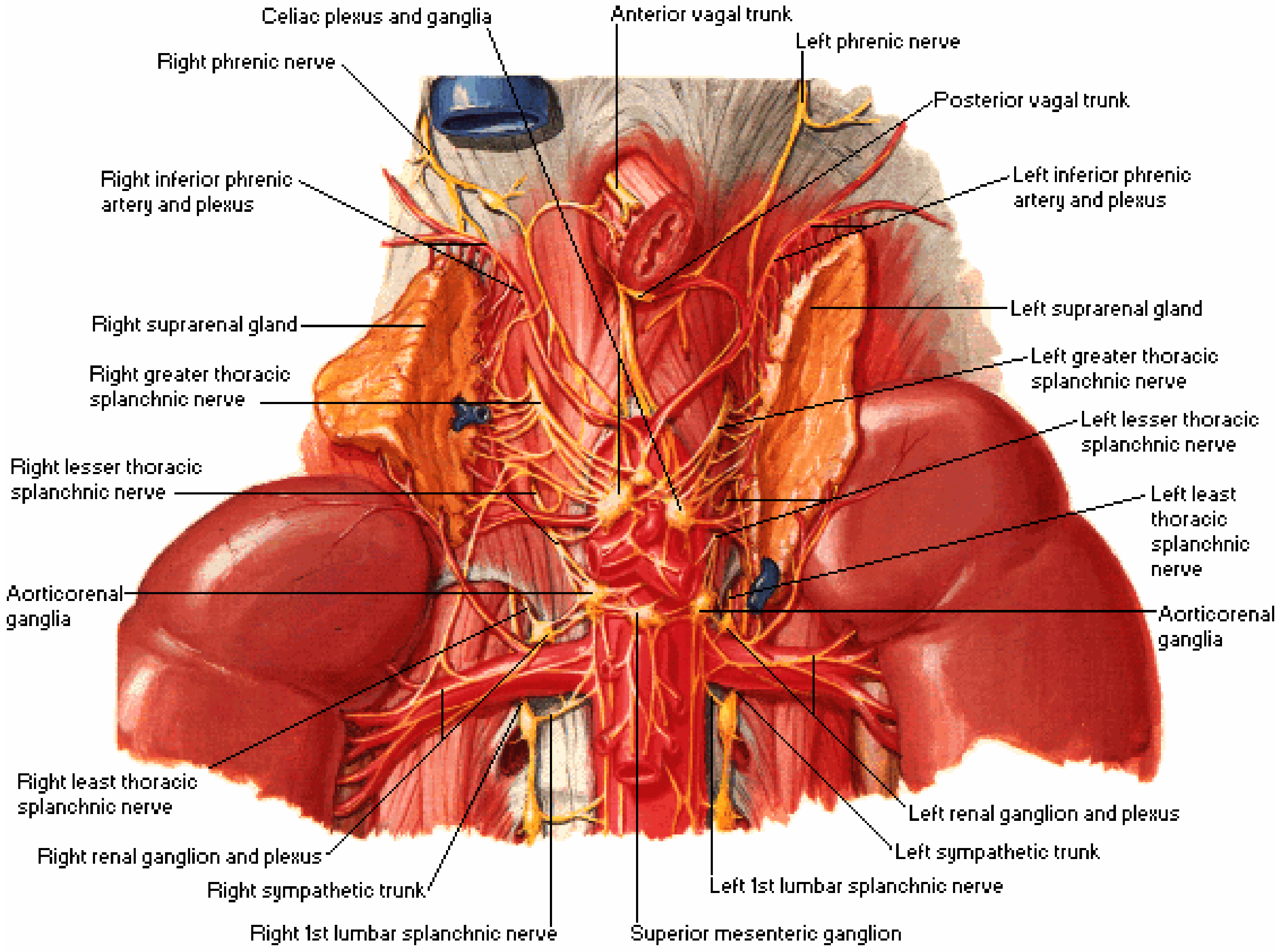
Superior suprarenal arteries (from inferior phrenic artery)
Liver (pulled up)
Inferior vena cava
Suprarenal vein
Peritoneum (cut edge)
Middle suprarenal arteries (from aorta)
Renal fascia
Duodenum (pulled down)
Suprarenal gland
Right kidney (pulled down)
Inferior suprarenal artery (from renal artery)



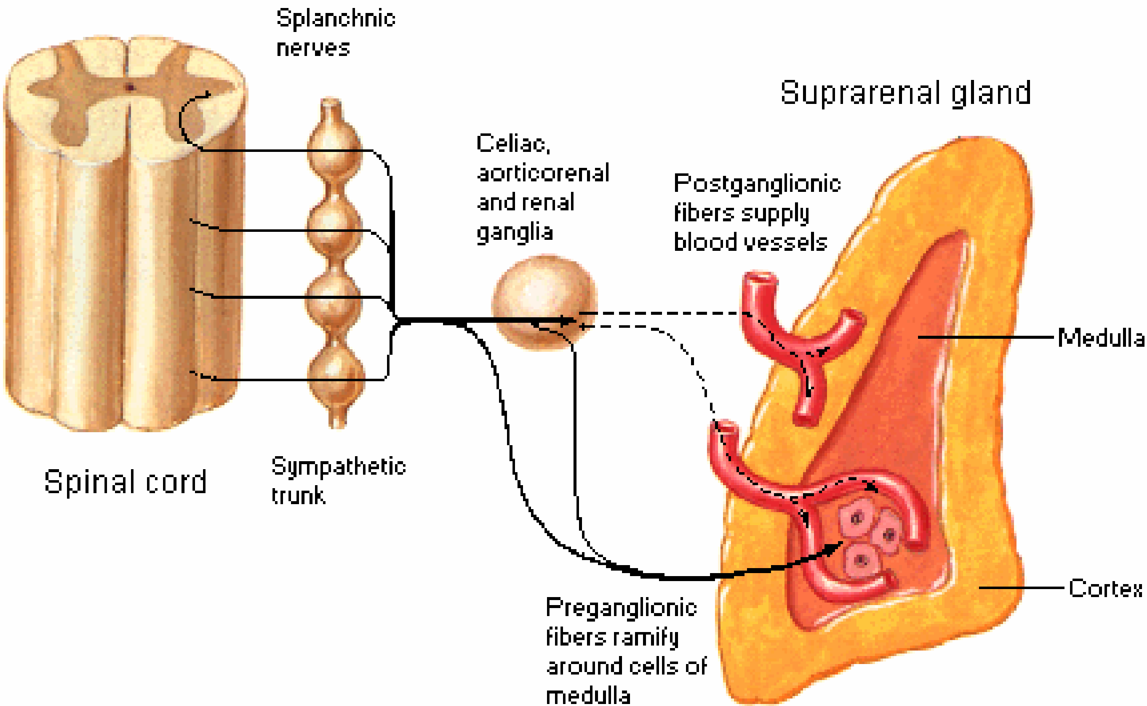
Left inferior phrenic artery
Pancreas and spleen (pulled up)
Renal fascia
Superior suprarenal arteries
Splenic vein
Suprarenal gland
Middle suprarenal artery
Aorta
Left kidney
Duodenojejunal flexure
Suprarenal vein
Left renal artery and vein
Left colic (splenic)
flexure (pulled medially)
Inferior suprarenal artery
Peritoneum
(cut edges)


Capsule
Cortex
Medulla

Dissection

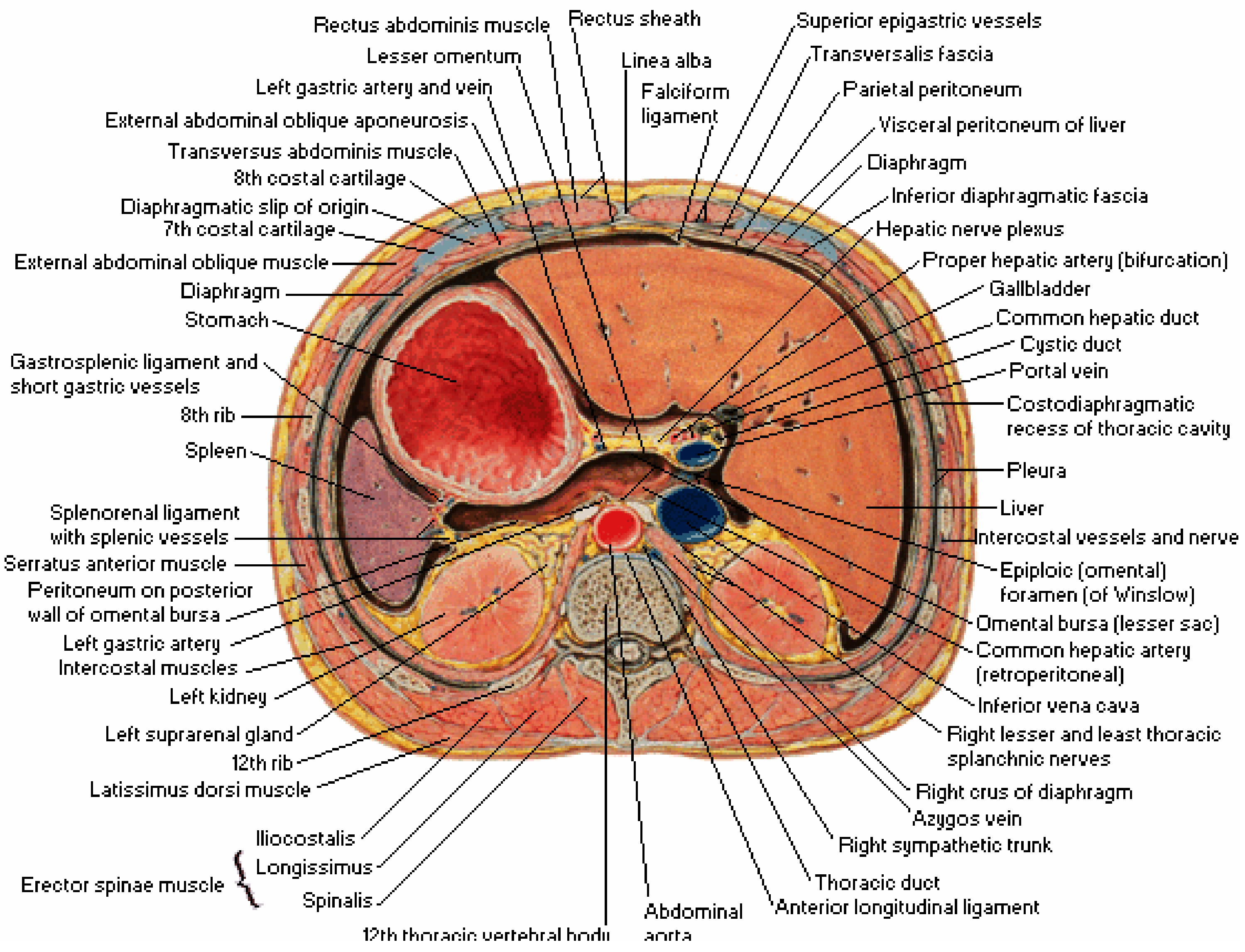

Celiac plexus and ganglia
Anterior vagal trunk
Left phrenic nerve
Right phrenic nerve
Posterior vagal trunk
Right inferior phrenic artery and plexus
Left inferior phrenic artery and plexus
Left suprarenal gland
Right suprarenal gland
Left greater thoracic splanchnic nerve
Right greater thoracic splanchnic nerve
Left lesser thoracic splanchnic nerve
Right lesser thoracic splanchnic nerve
Left least thoracic splanchnic nerve
Aorticorenal ganglia
Aorticorenal ganglia
Right least thoracic splanchnic nerve
Left renal ganglion and plexus
Right renal ganglion and plexus
Left sympathetic trunk
Right sympathetic trunk
Left 1st lumbar splanchnic nerve
Right 1st lumbar splanchnic nerve
Superior mesenteric ganglion

Schema

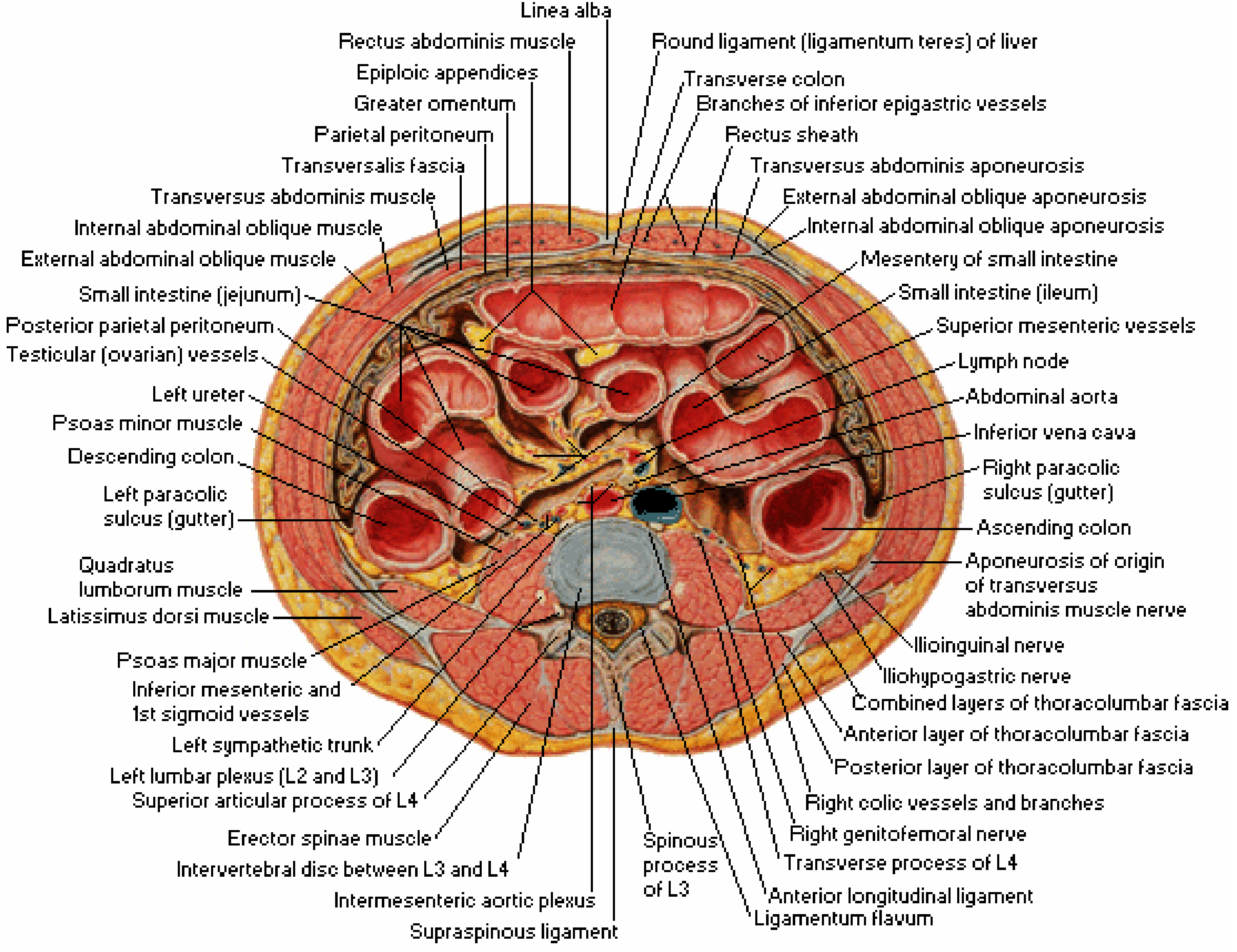


Splanchnic nerves
Suprarenal gland
Celiac, aorticorenal and renal ganglia
Postganglionic fibers supply blood vessels
Medulla
Cortex
Spinal cord
Sympathetic trunk
Preganglionic fibers ramify around cells of medulla

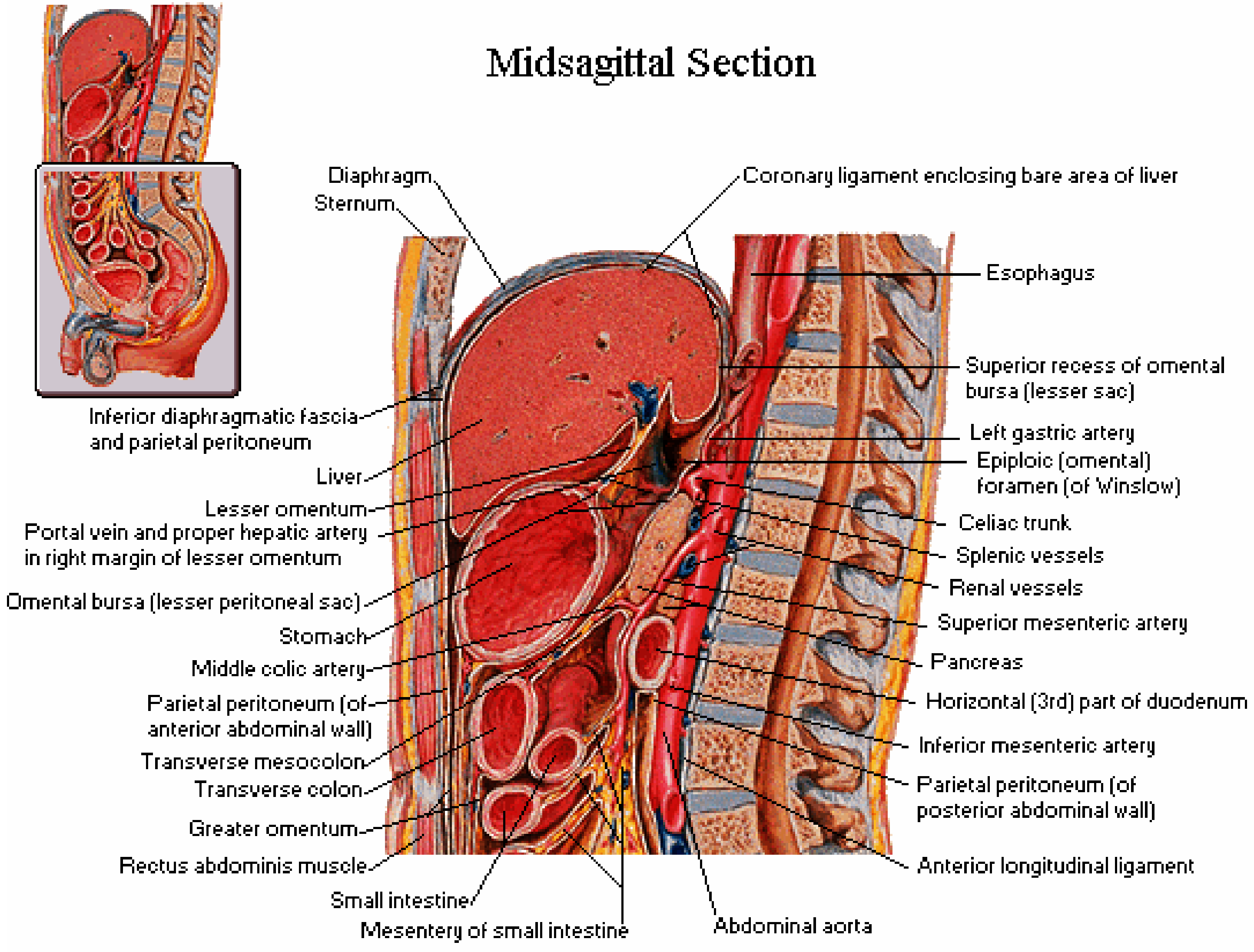
Cross Section at T12



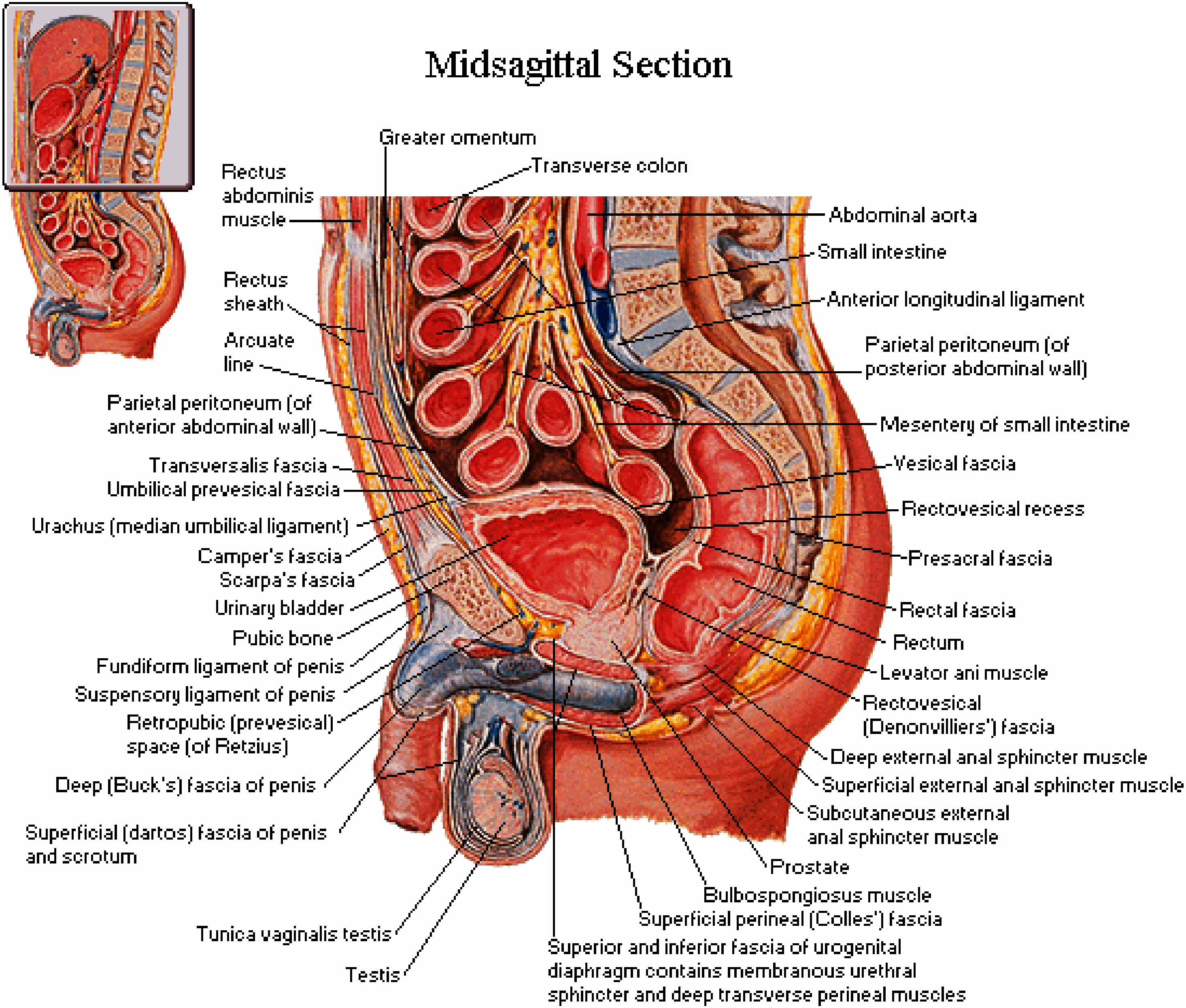
Cross Section Between L2 and L3



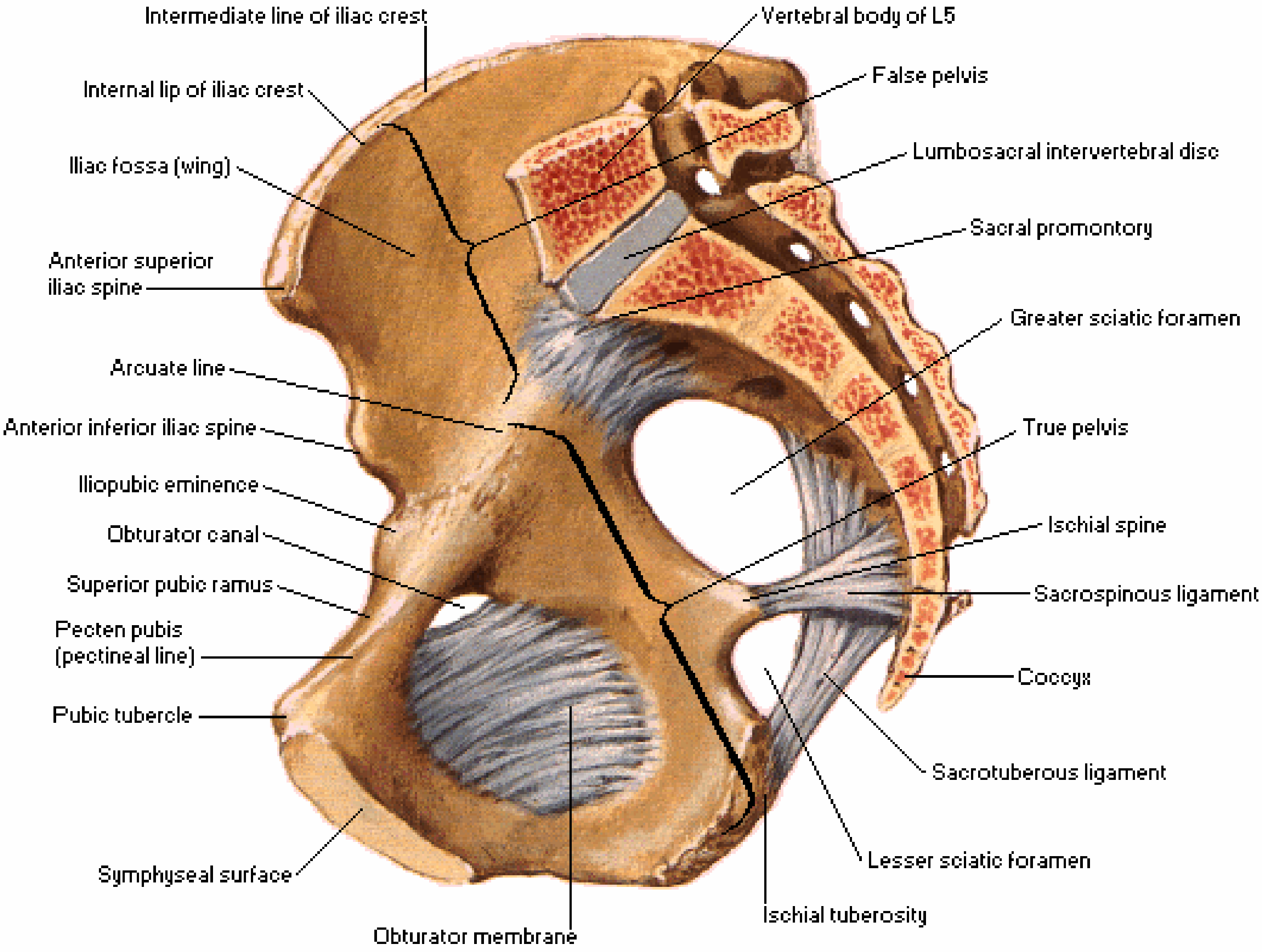
Midsagittal Section



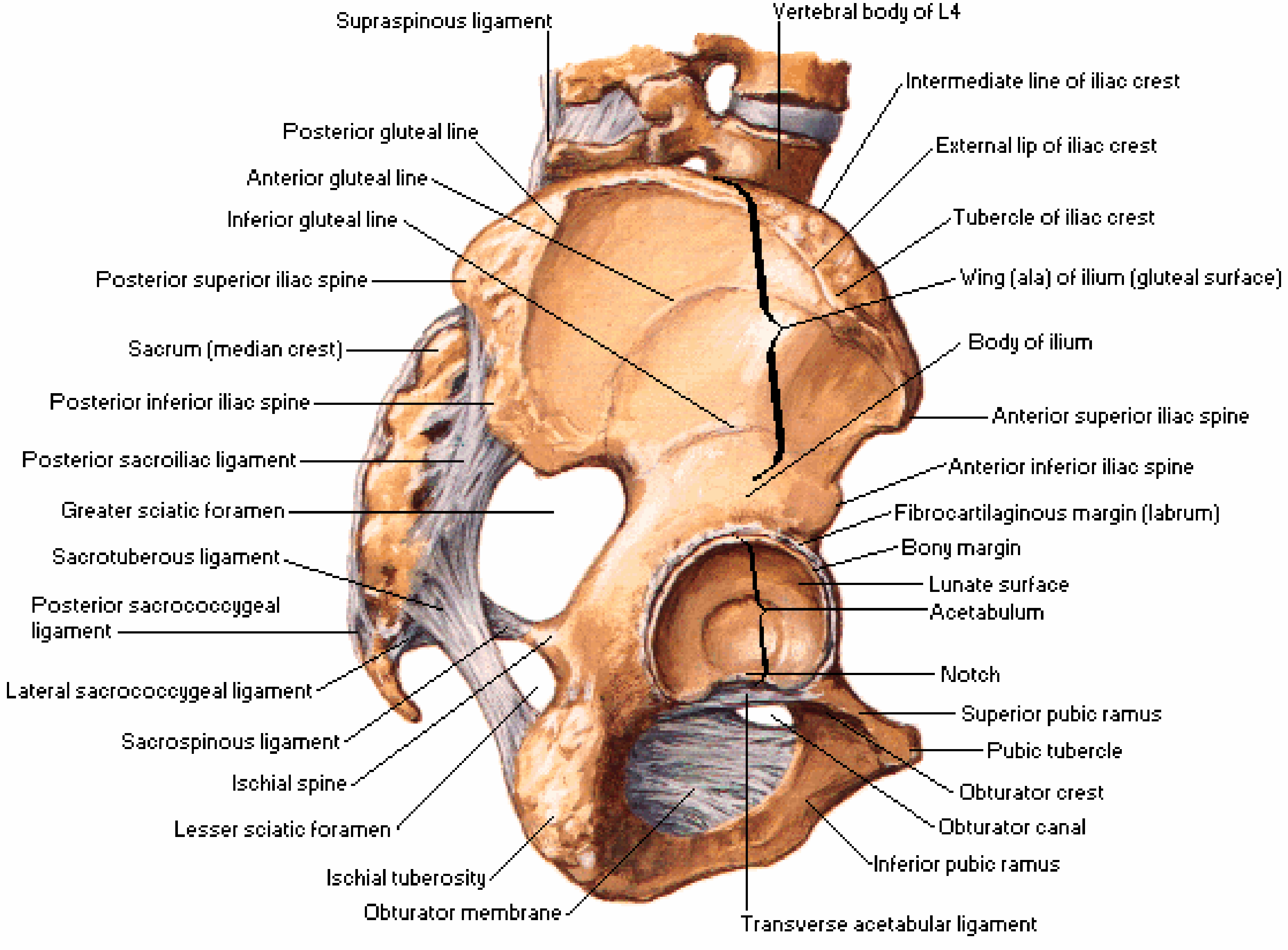
Midsagittal Section



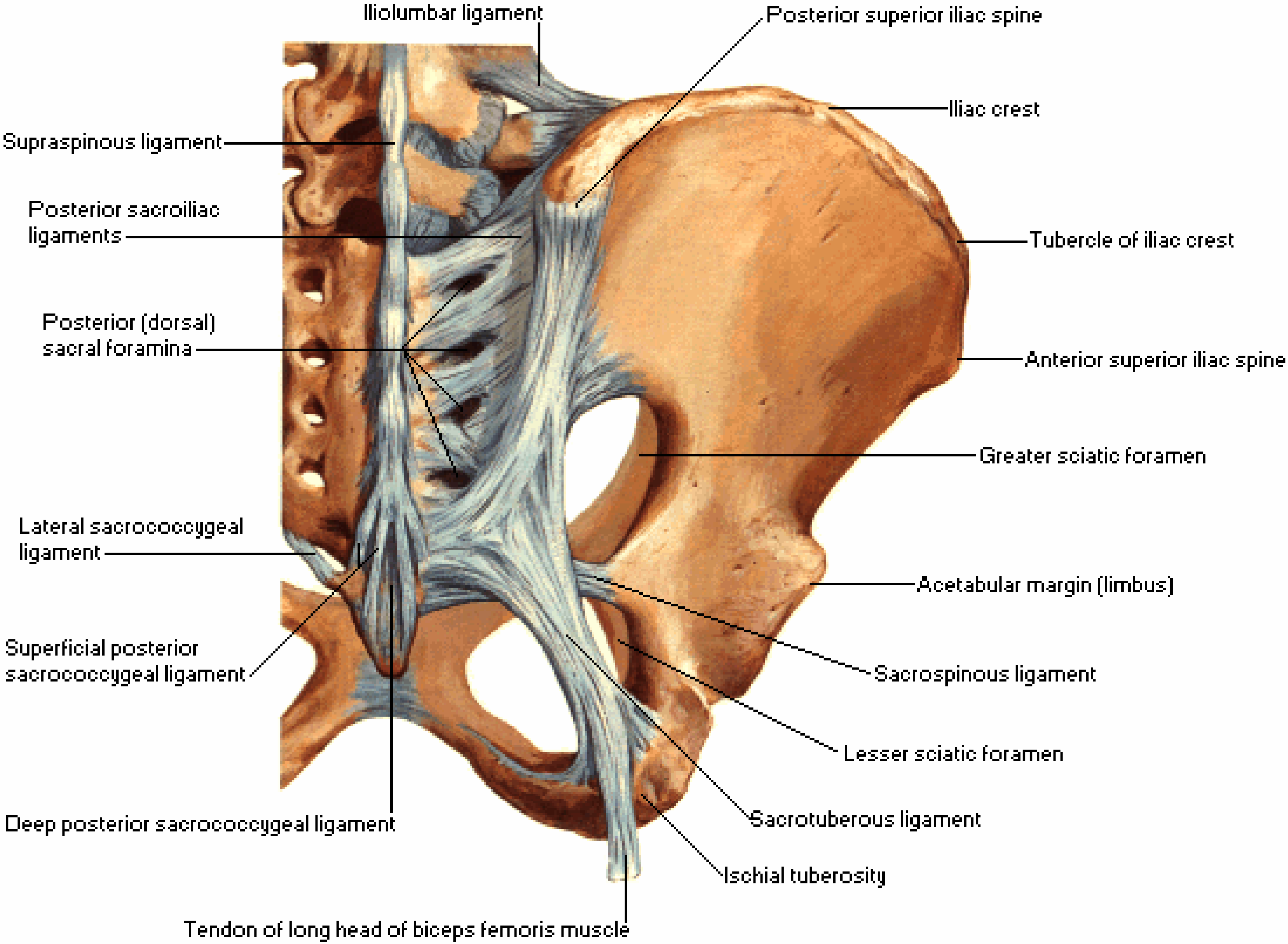
Midsagittal Section



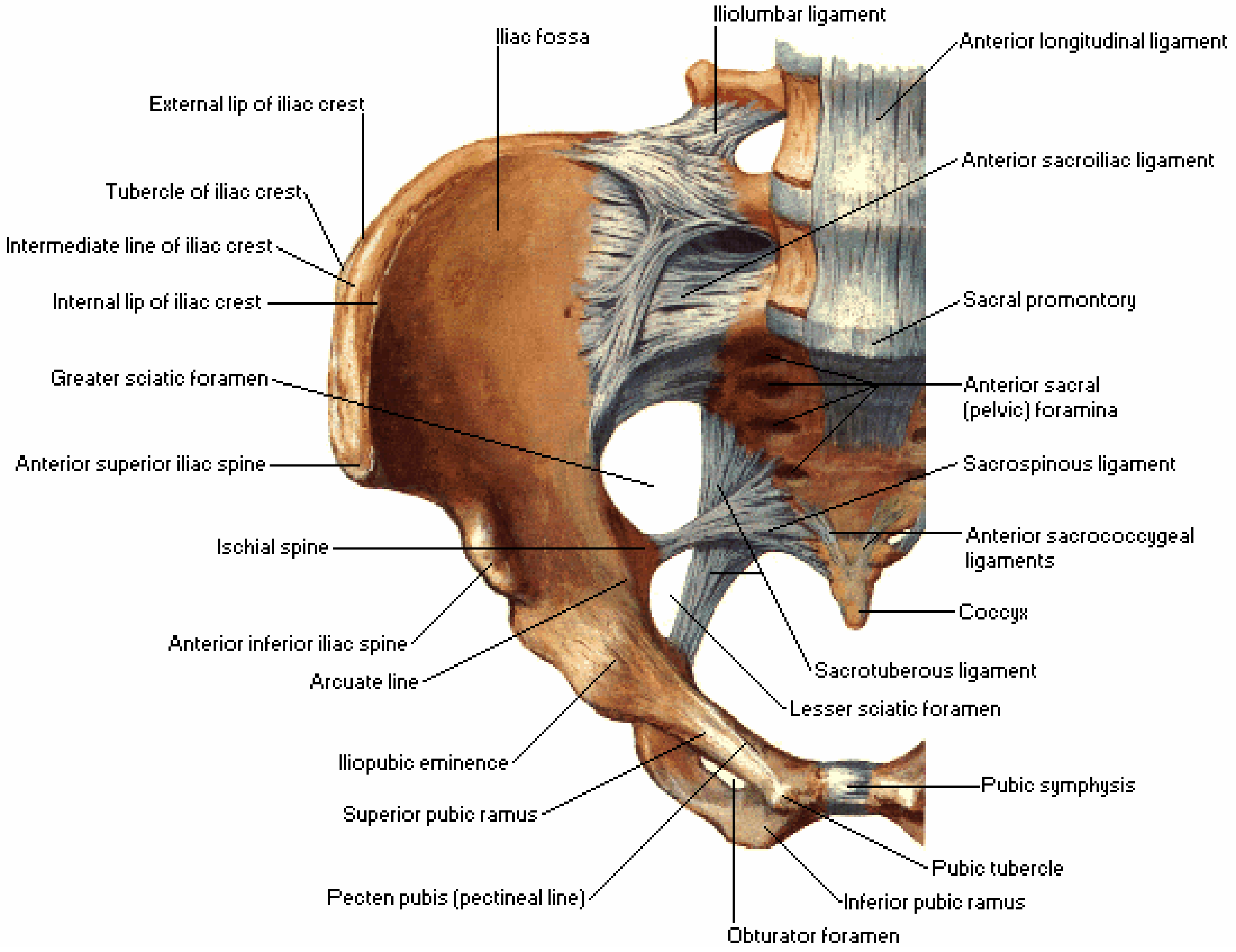
Lateral View



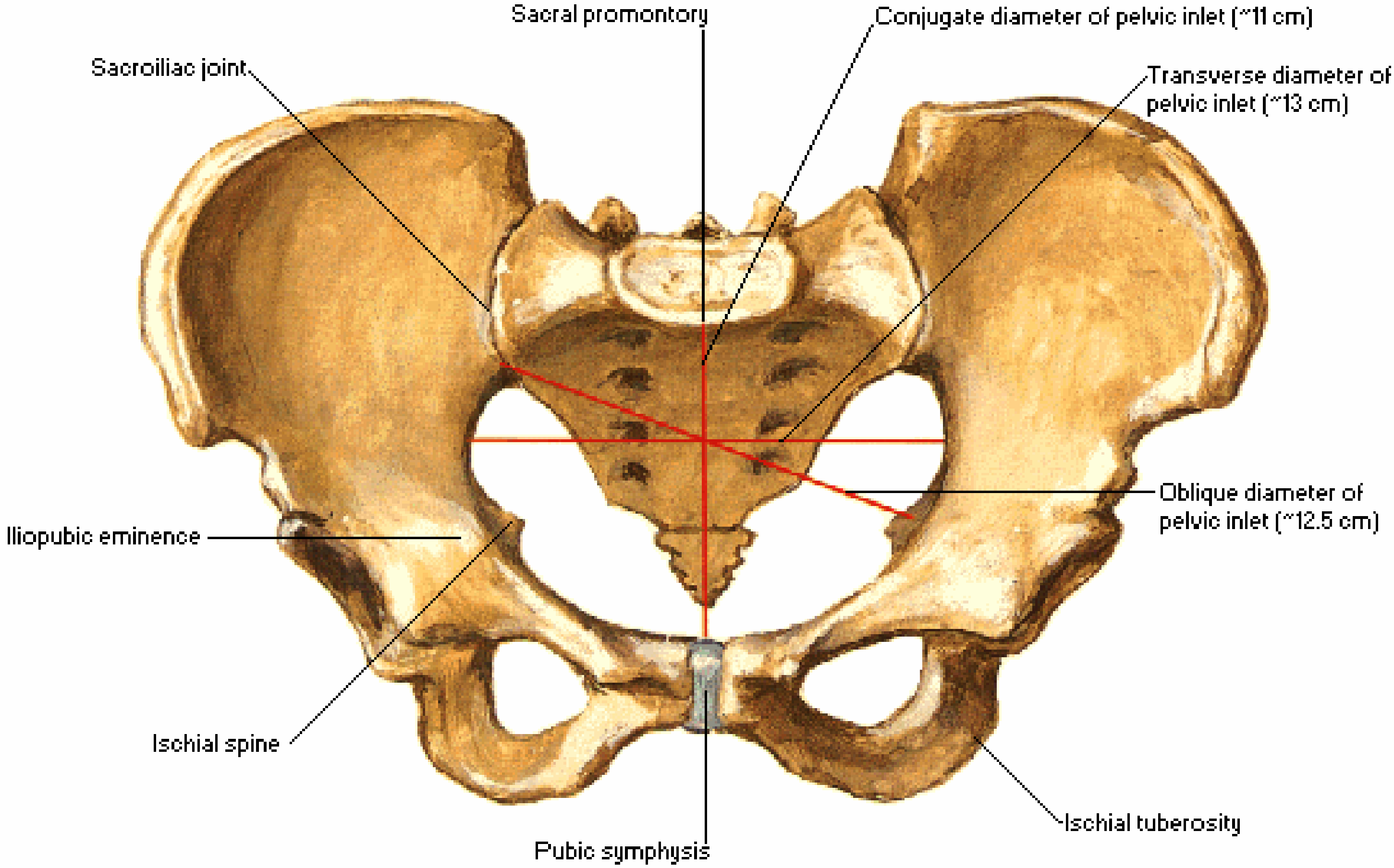
Posterior View



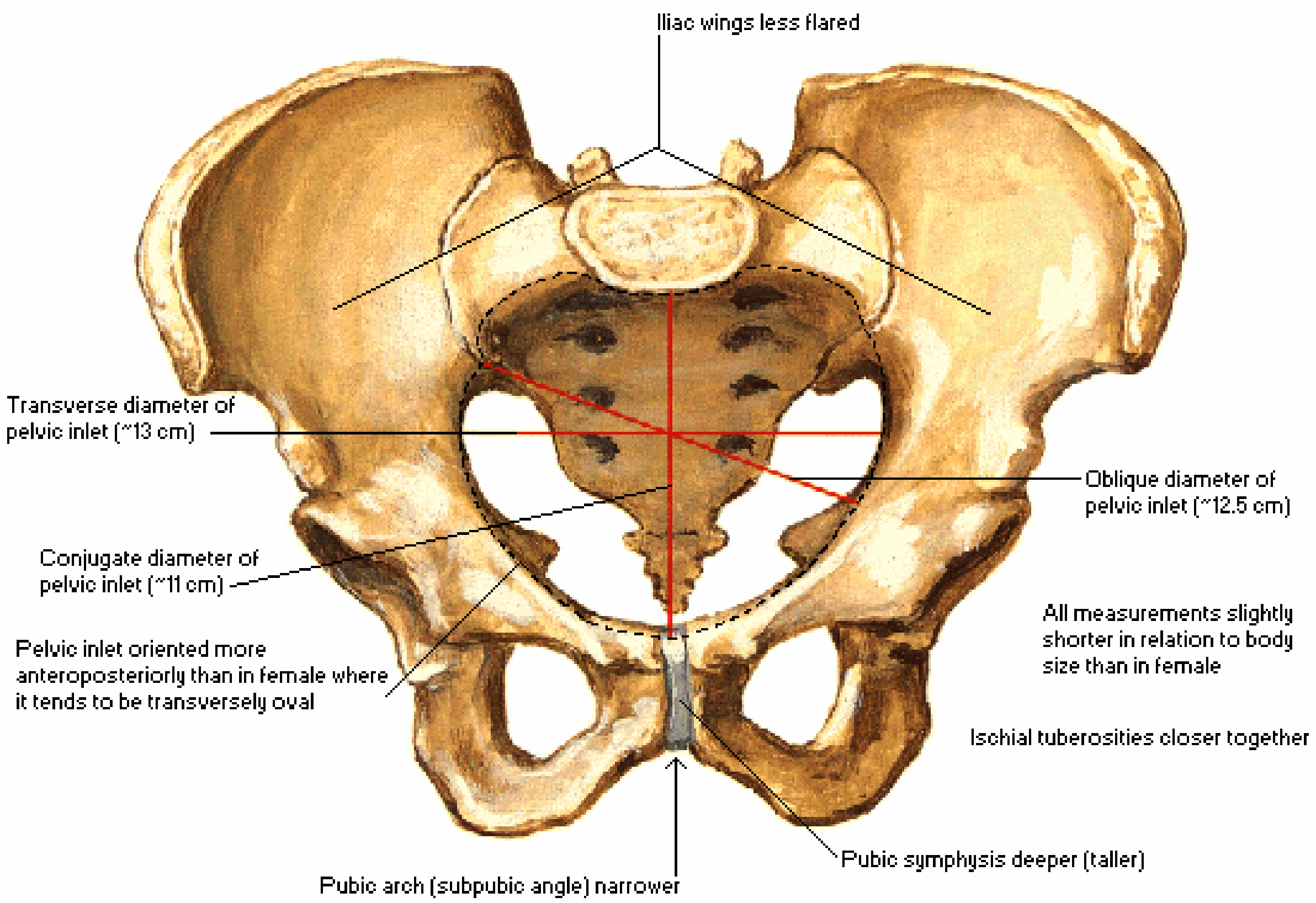
Anterior View



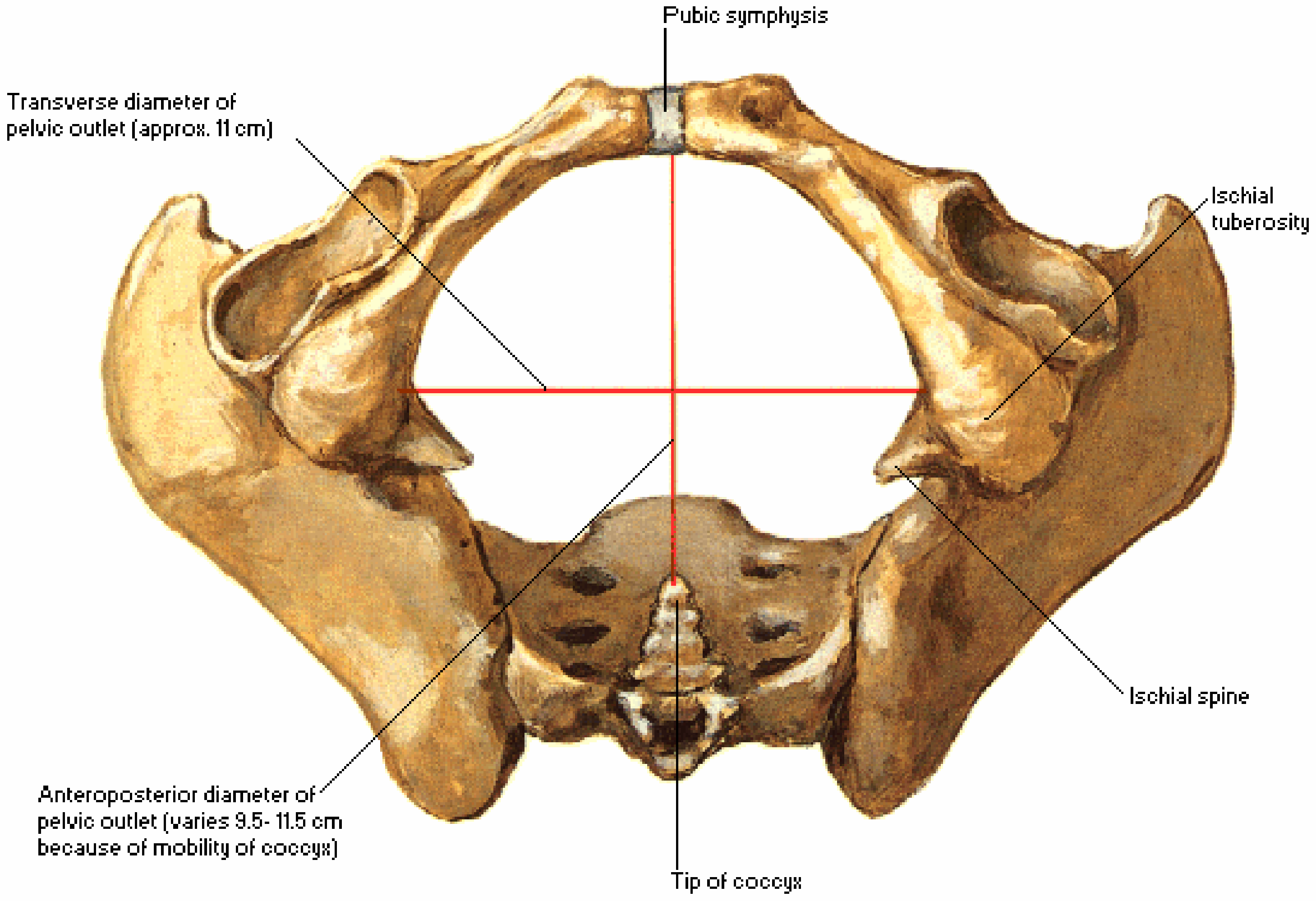
Measurements - Anterior View



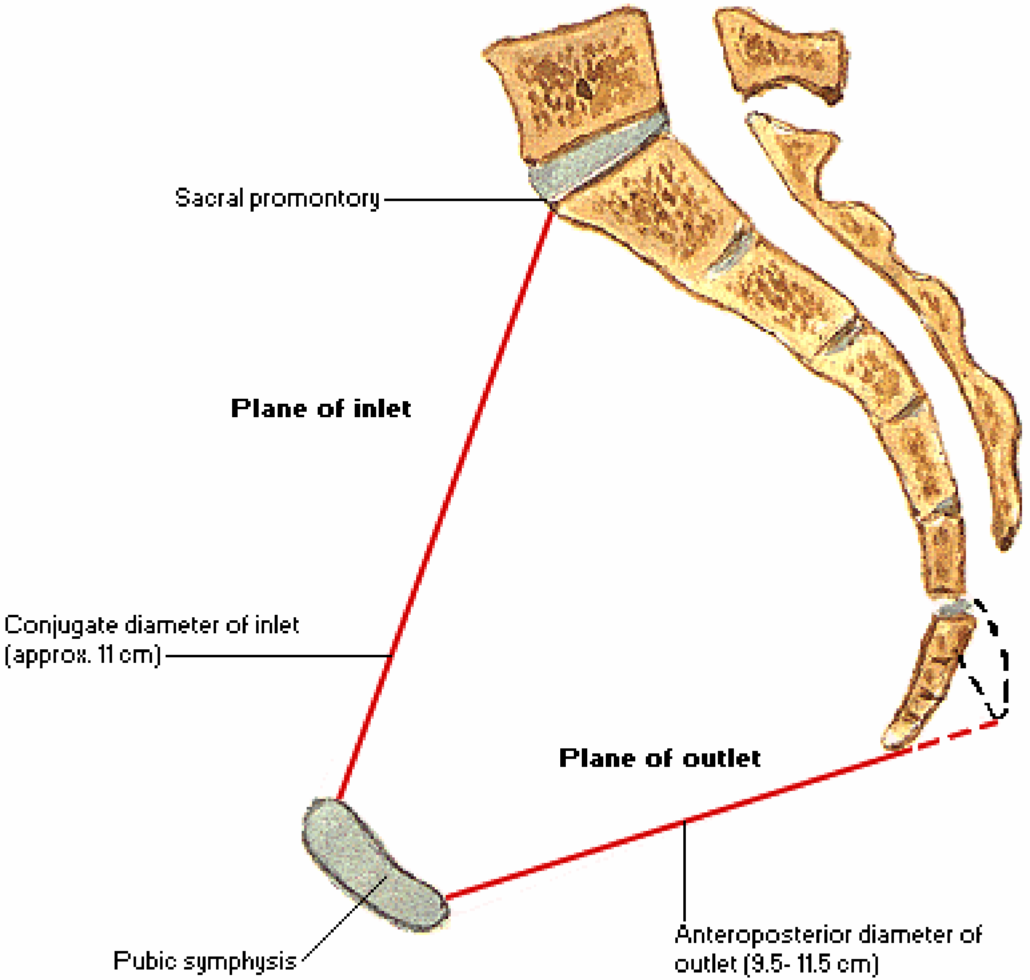
Measurements - Anterior View



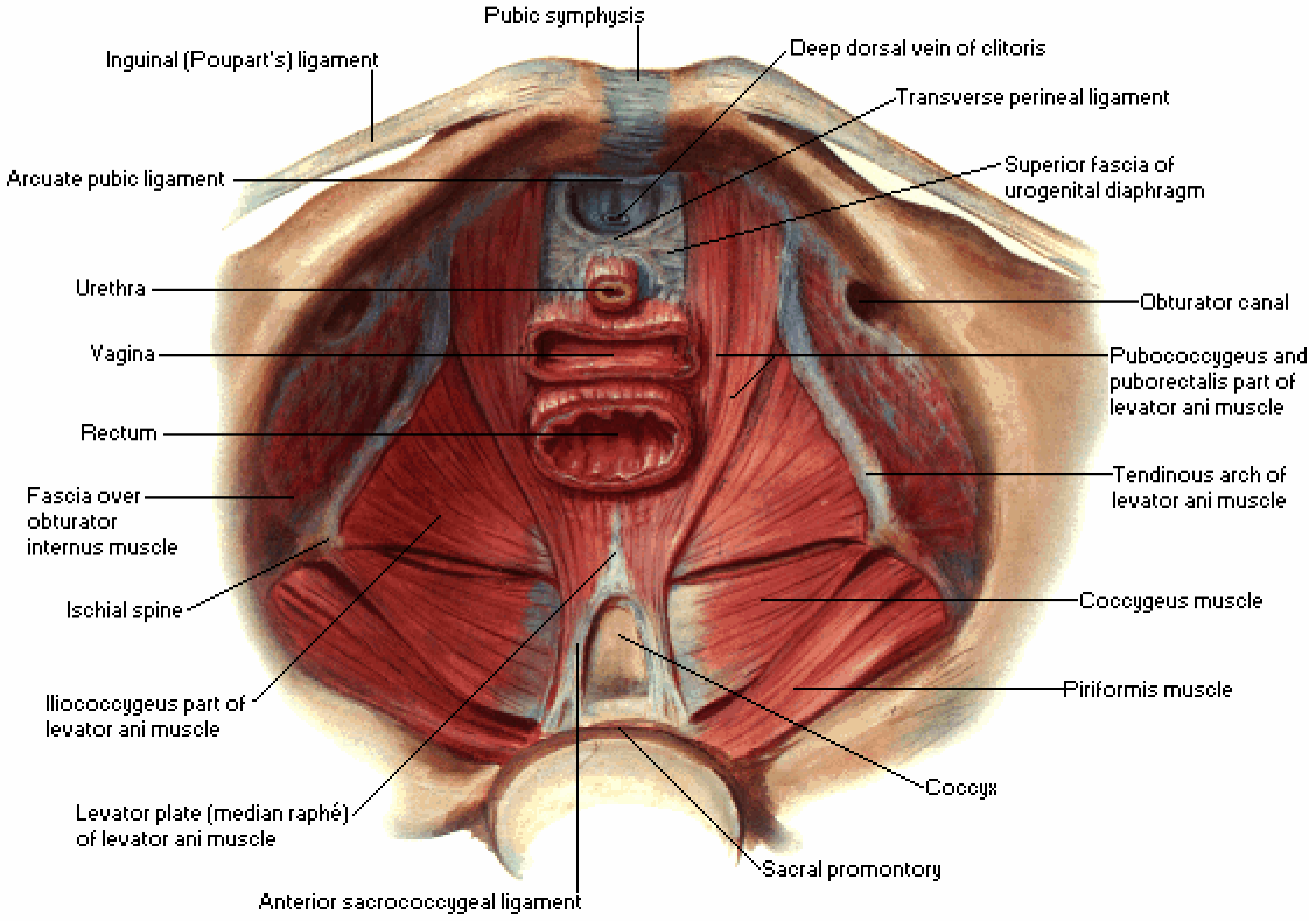
Measurements - Inferior View



Measurements - Sagittal Section

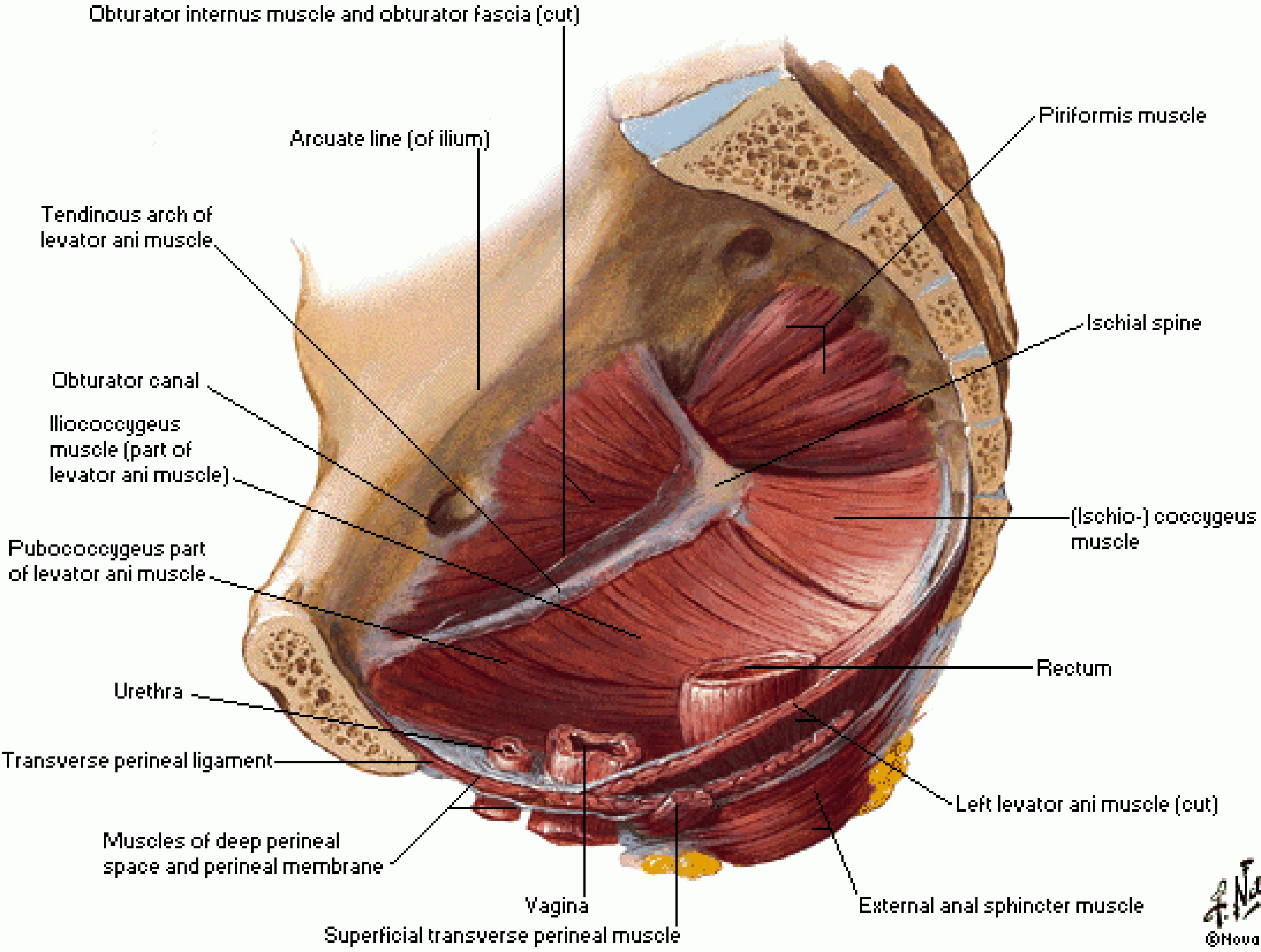


Superior View

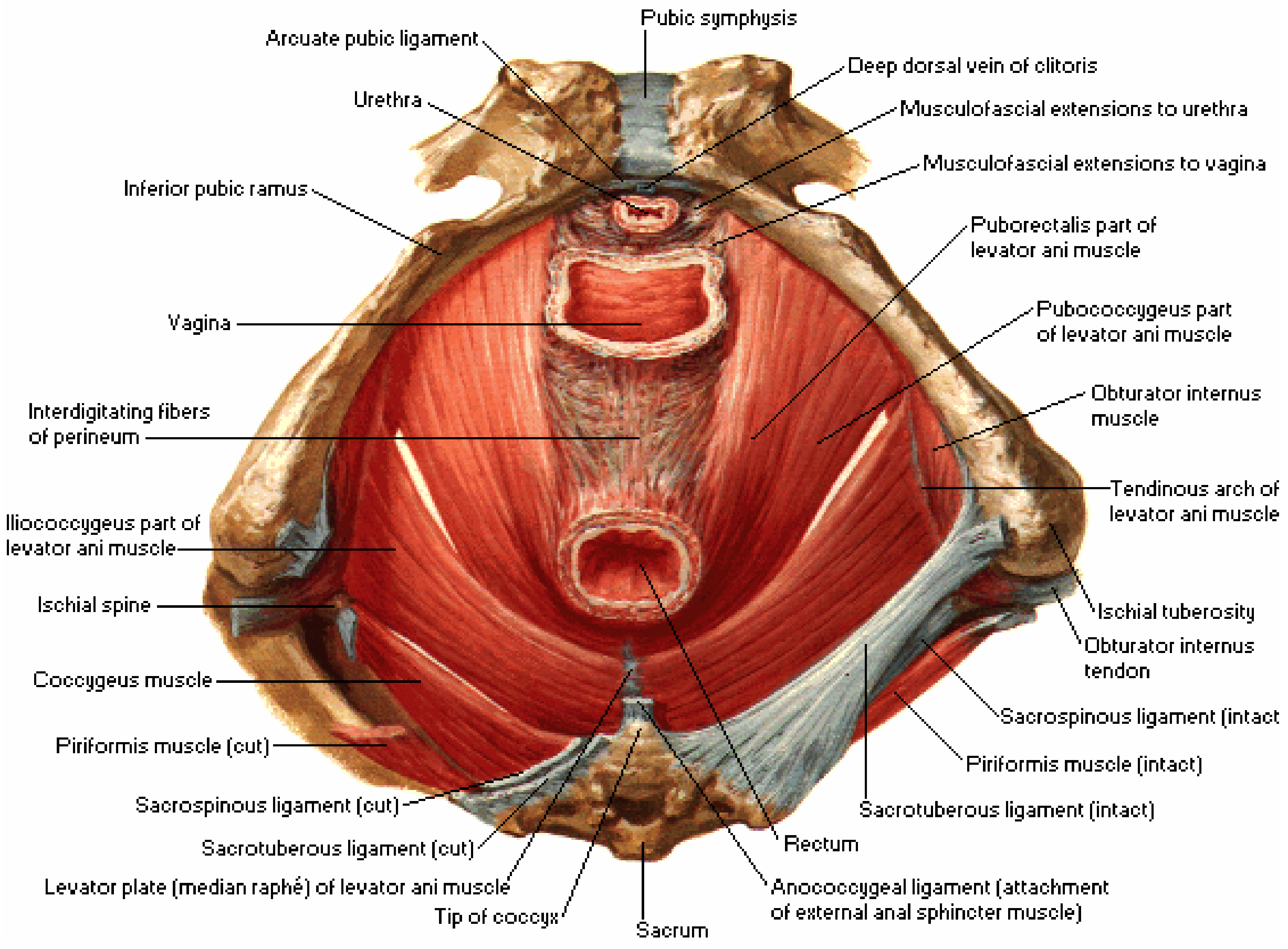


Pelvic Diaphragm of Female

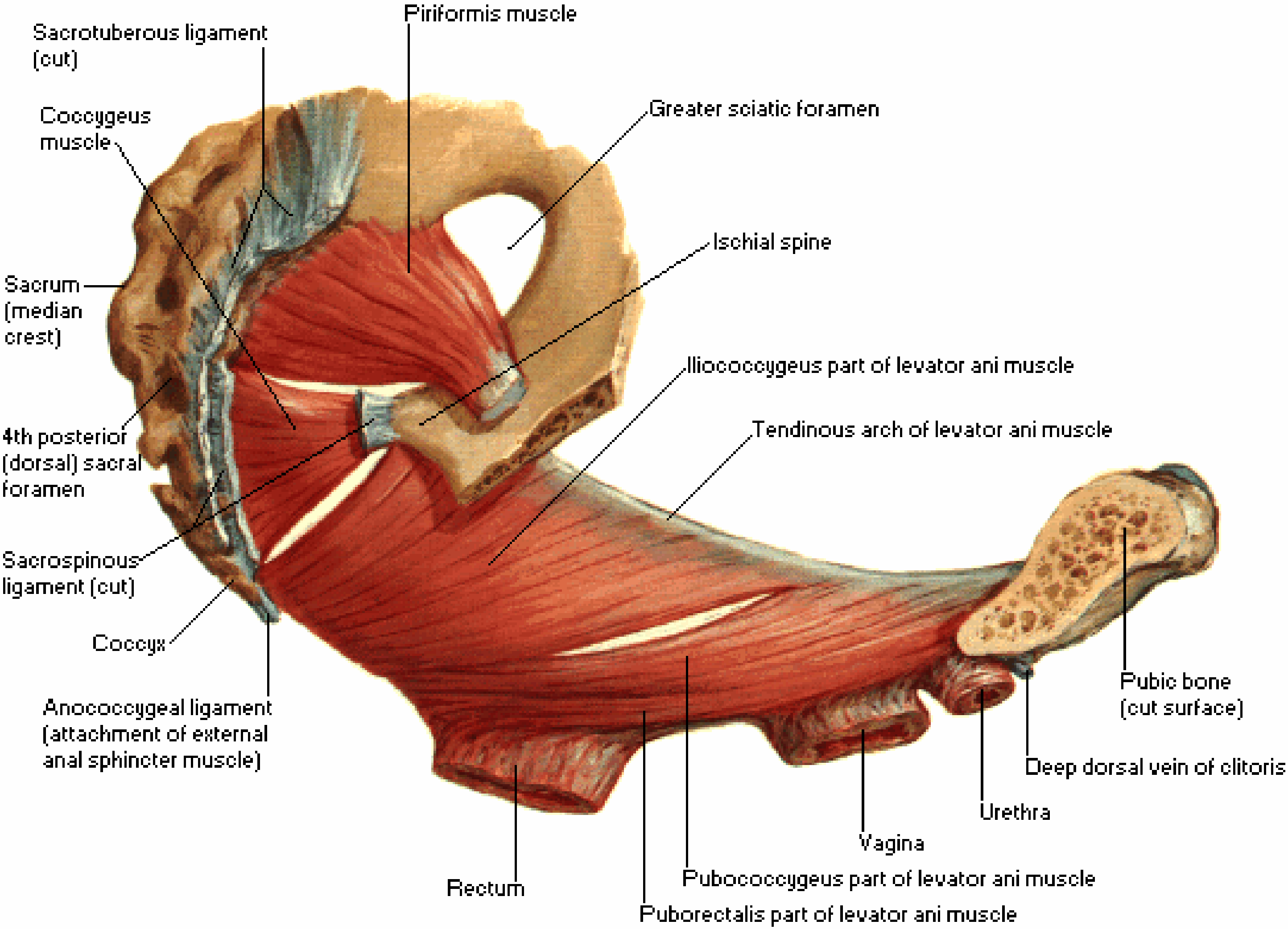
Medial View



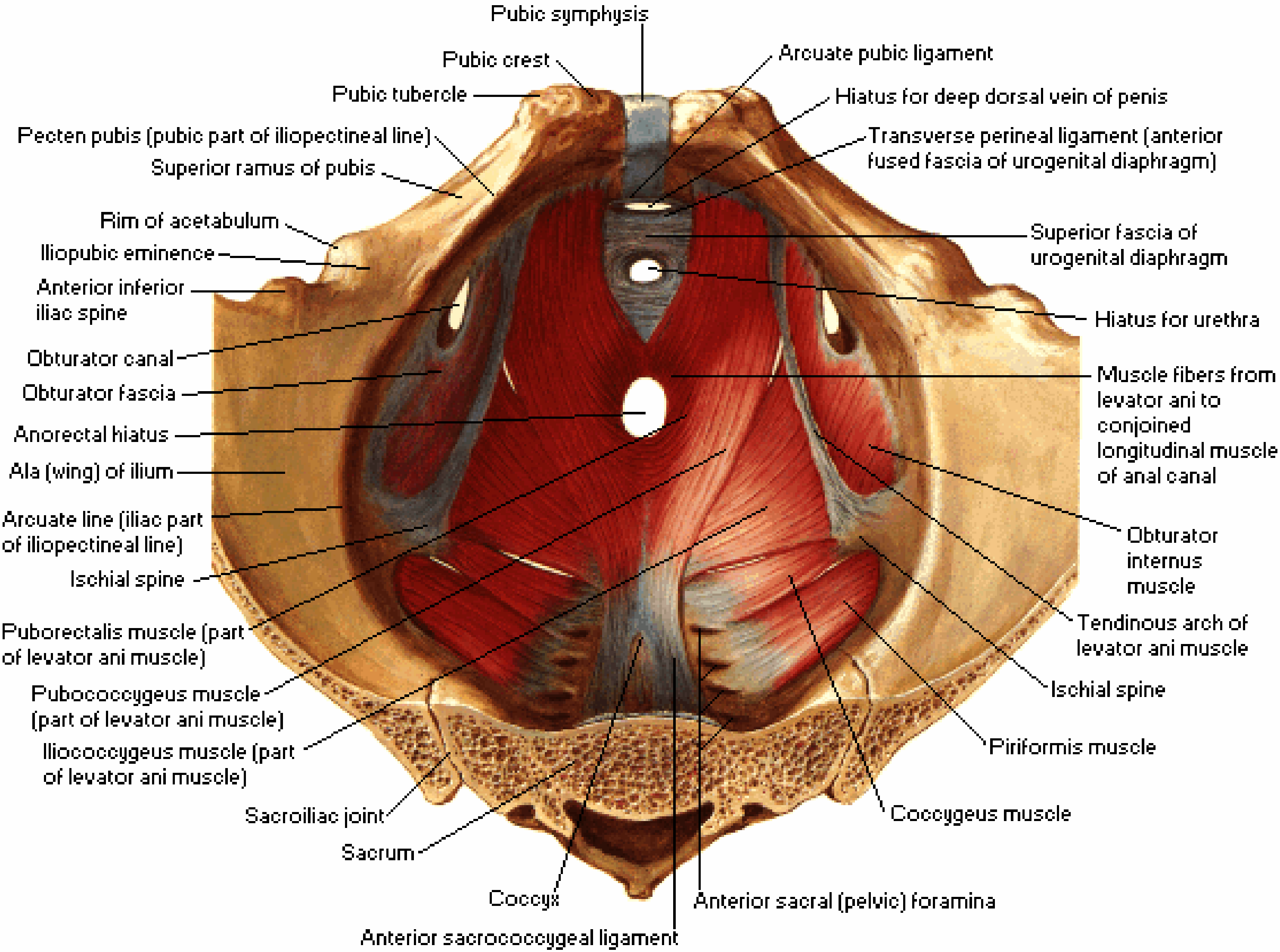
Inferior View



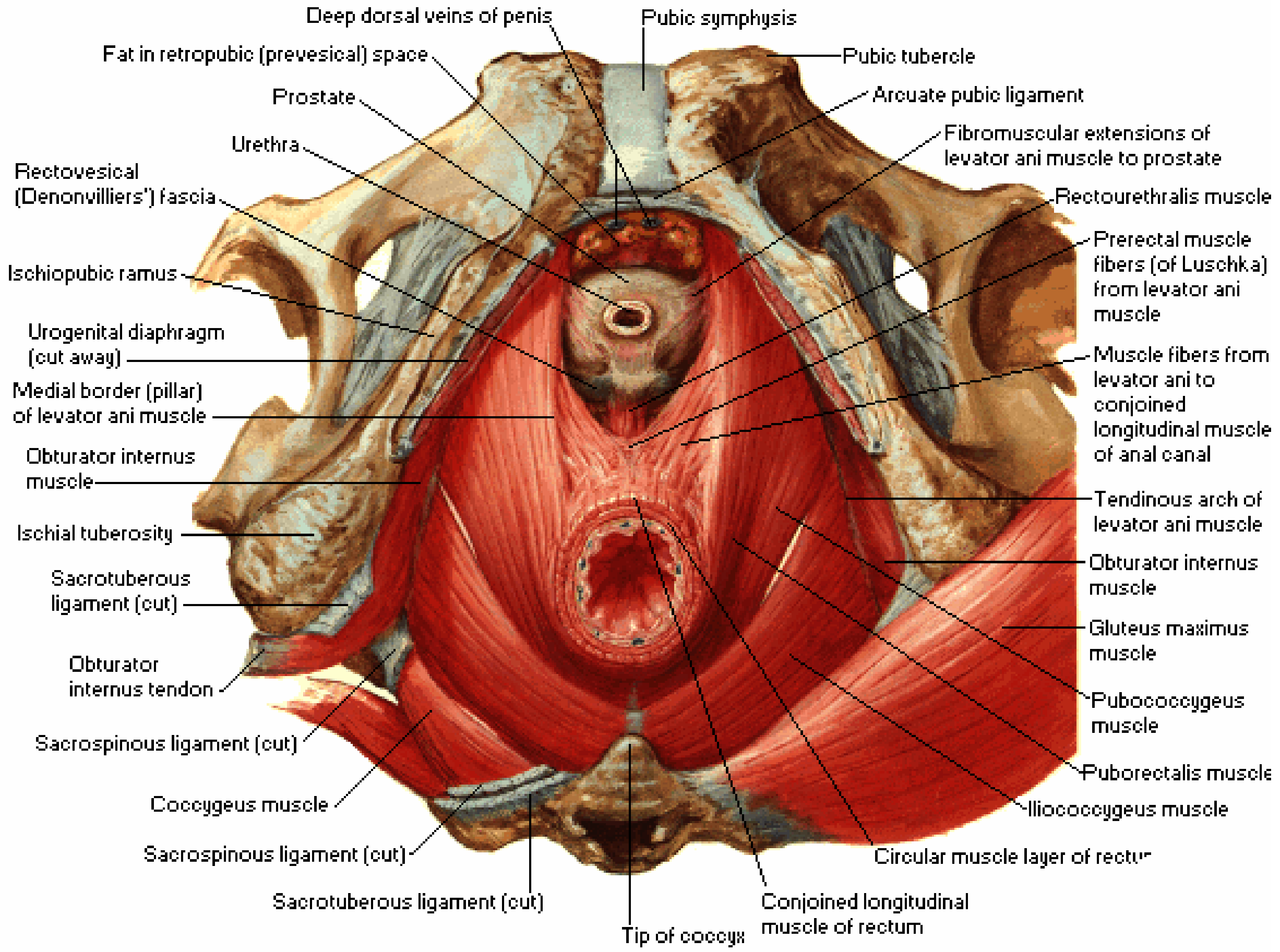
Lateral View



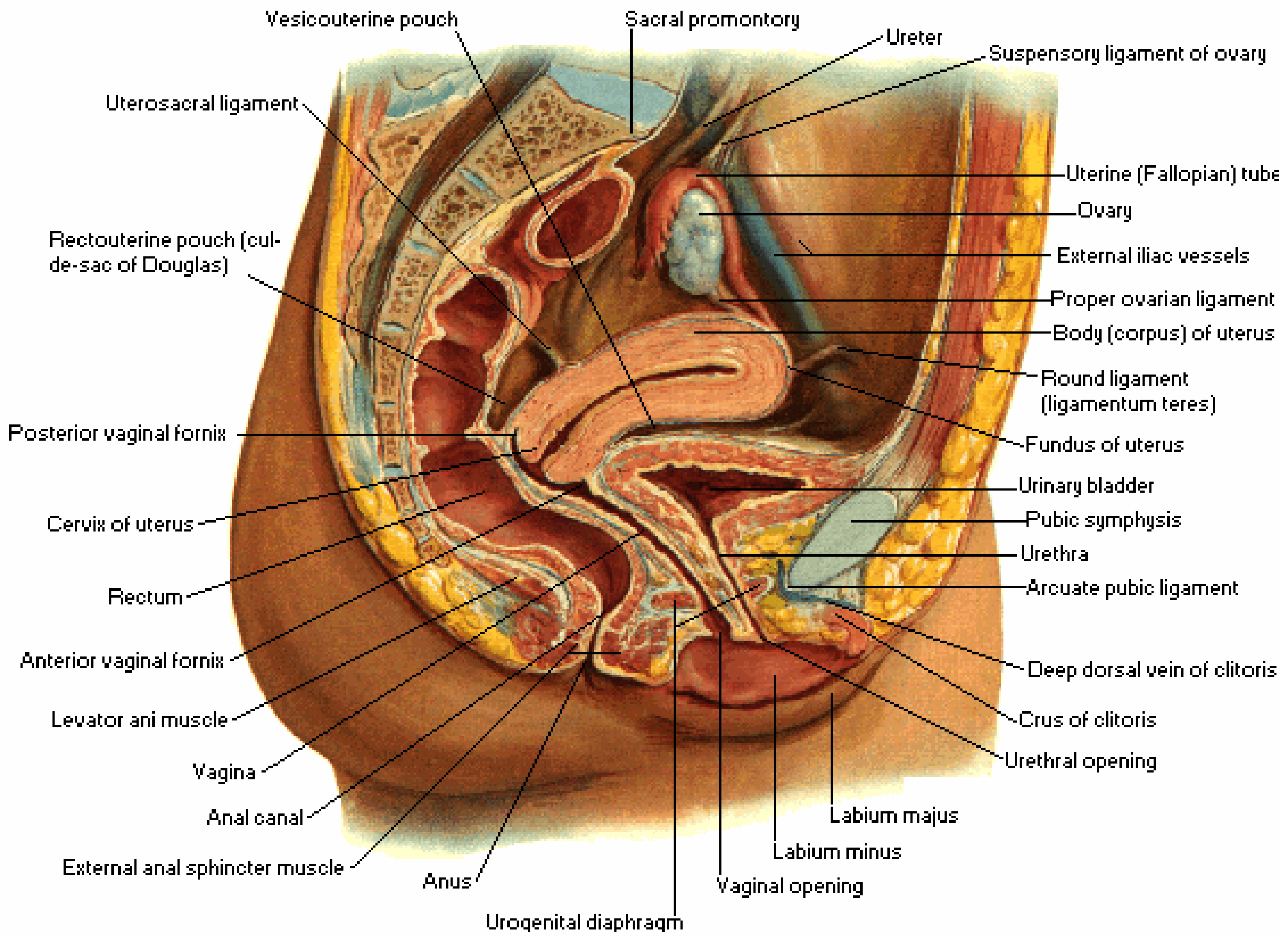
Superior View - Viscera Removed



Inferior View

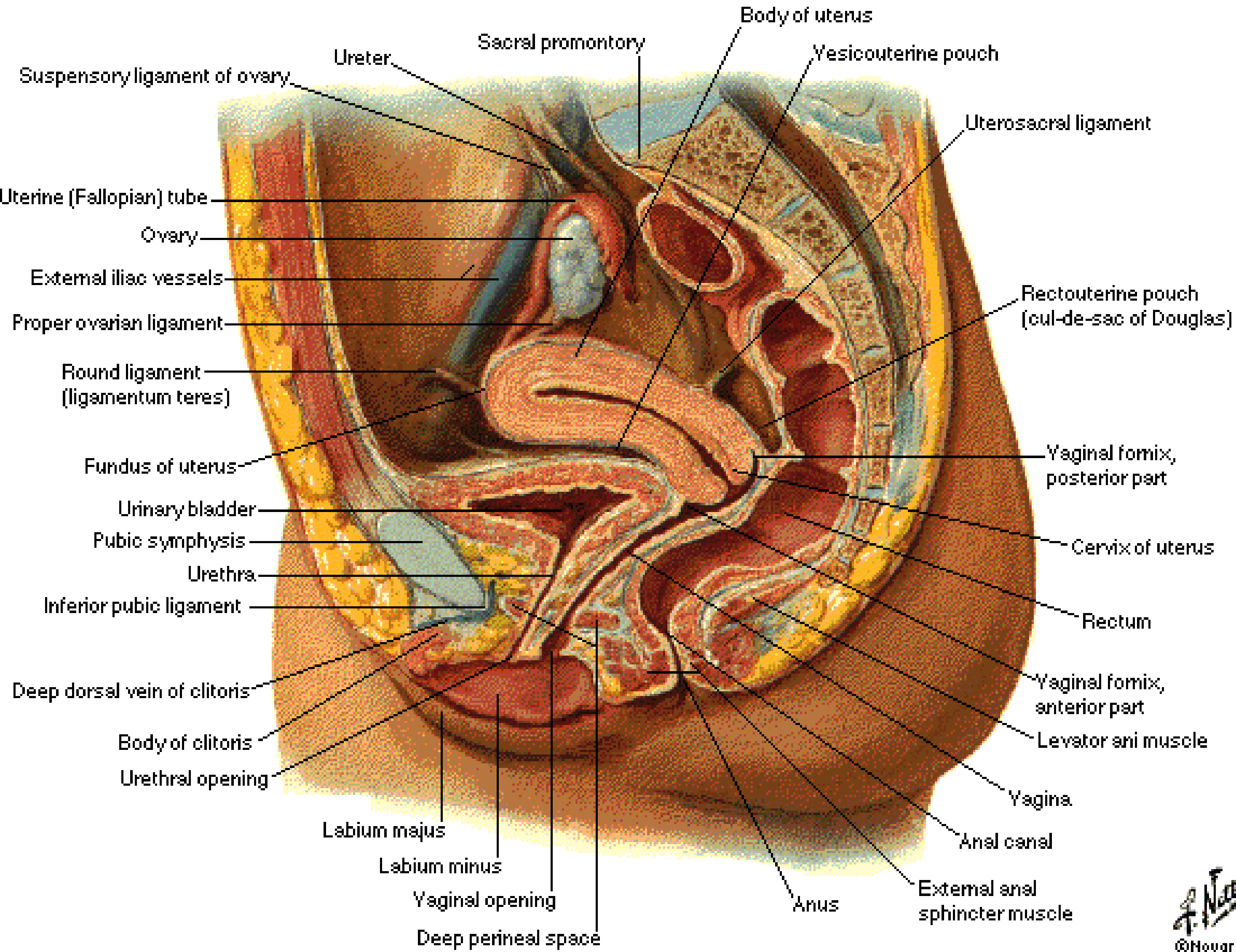


Midsagittal Section

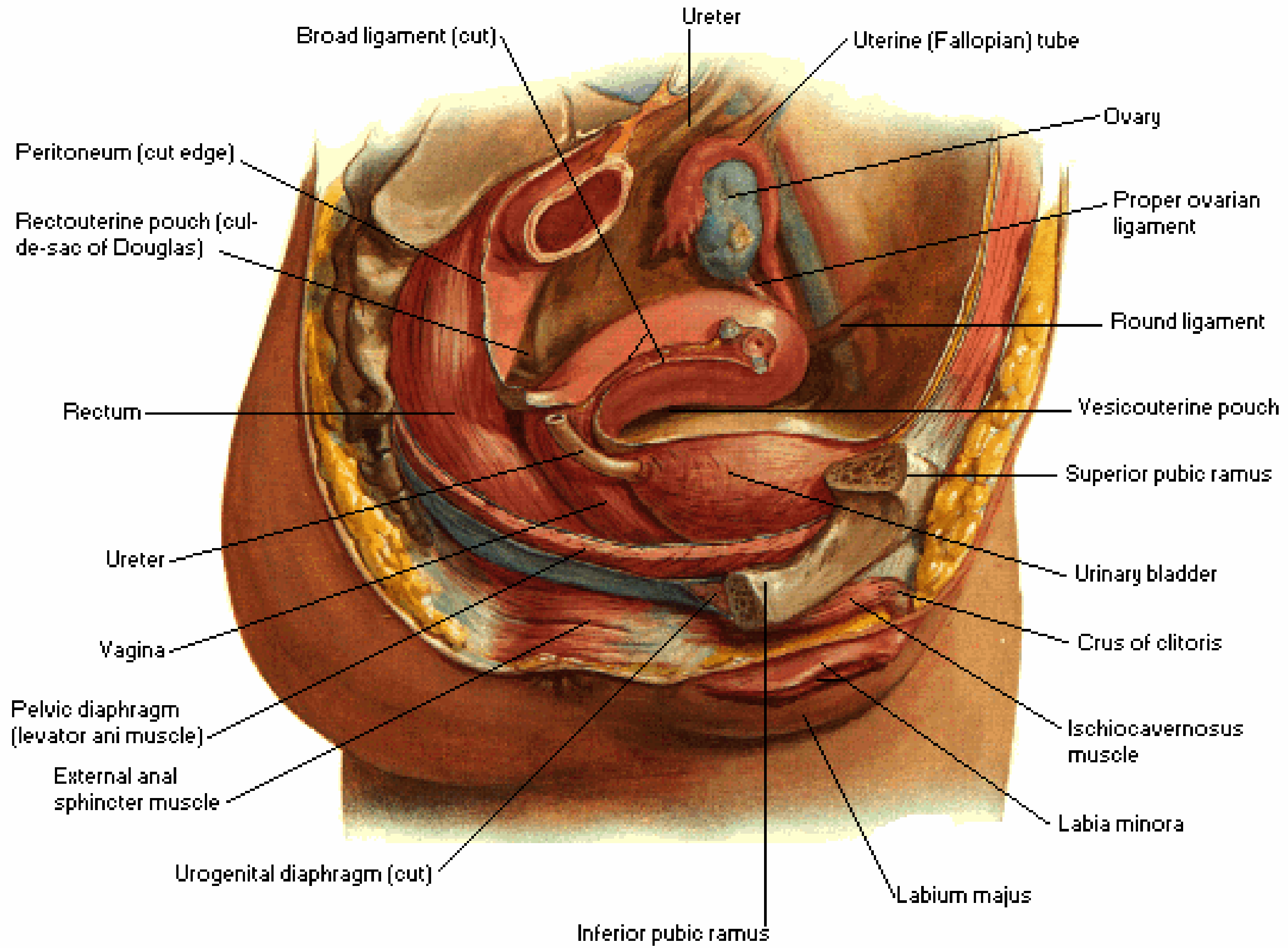


Pelvic Viscera and Perineum of Female

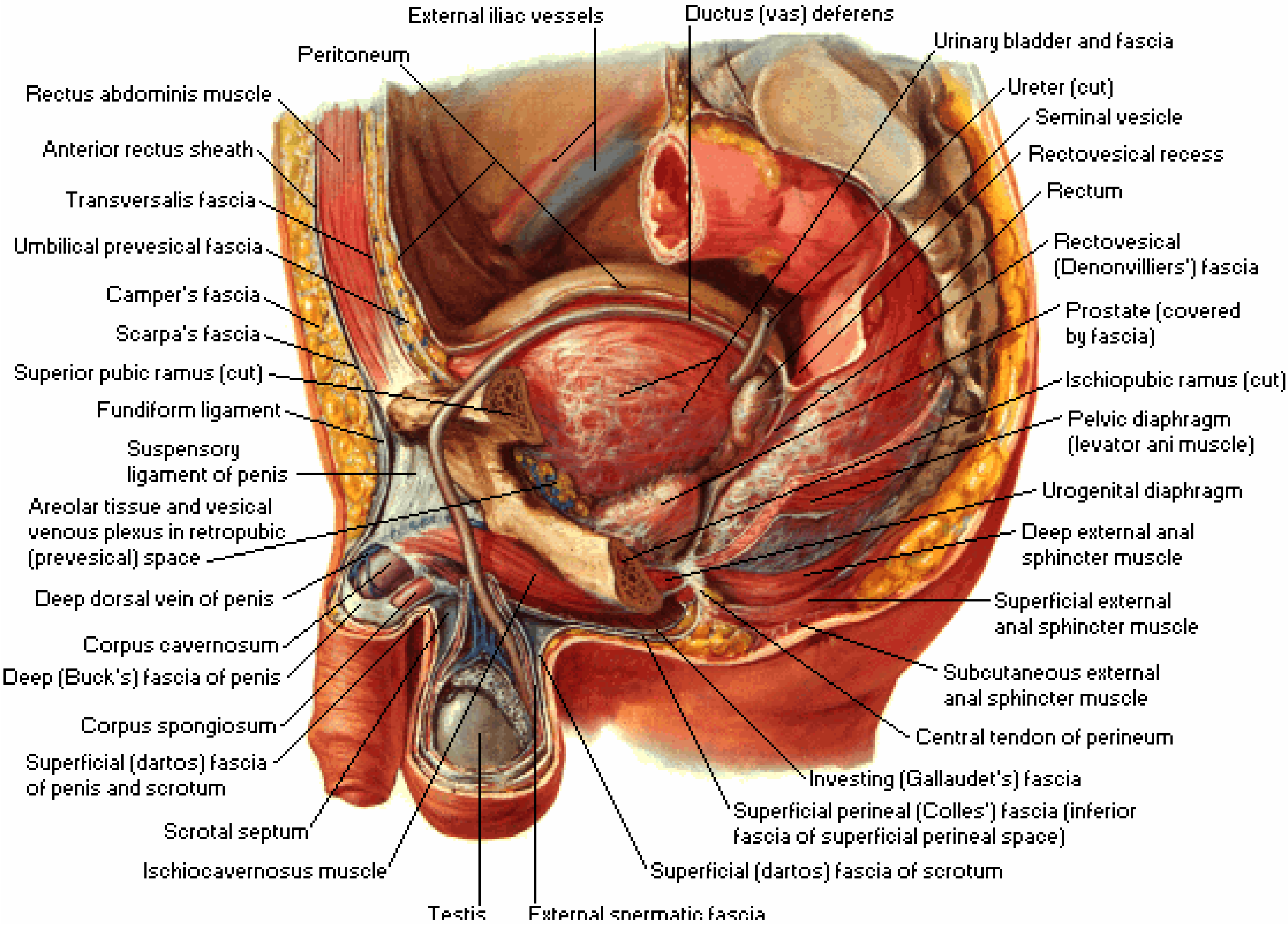
Midsagittal Section



Paramedian Sagittal Section

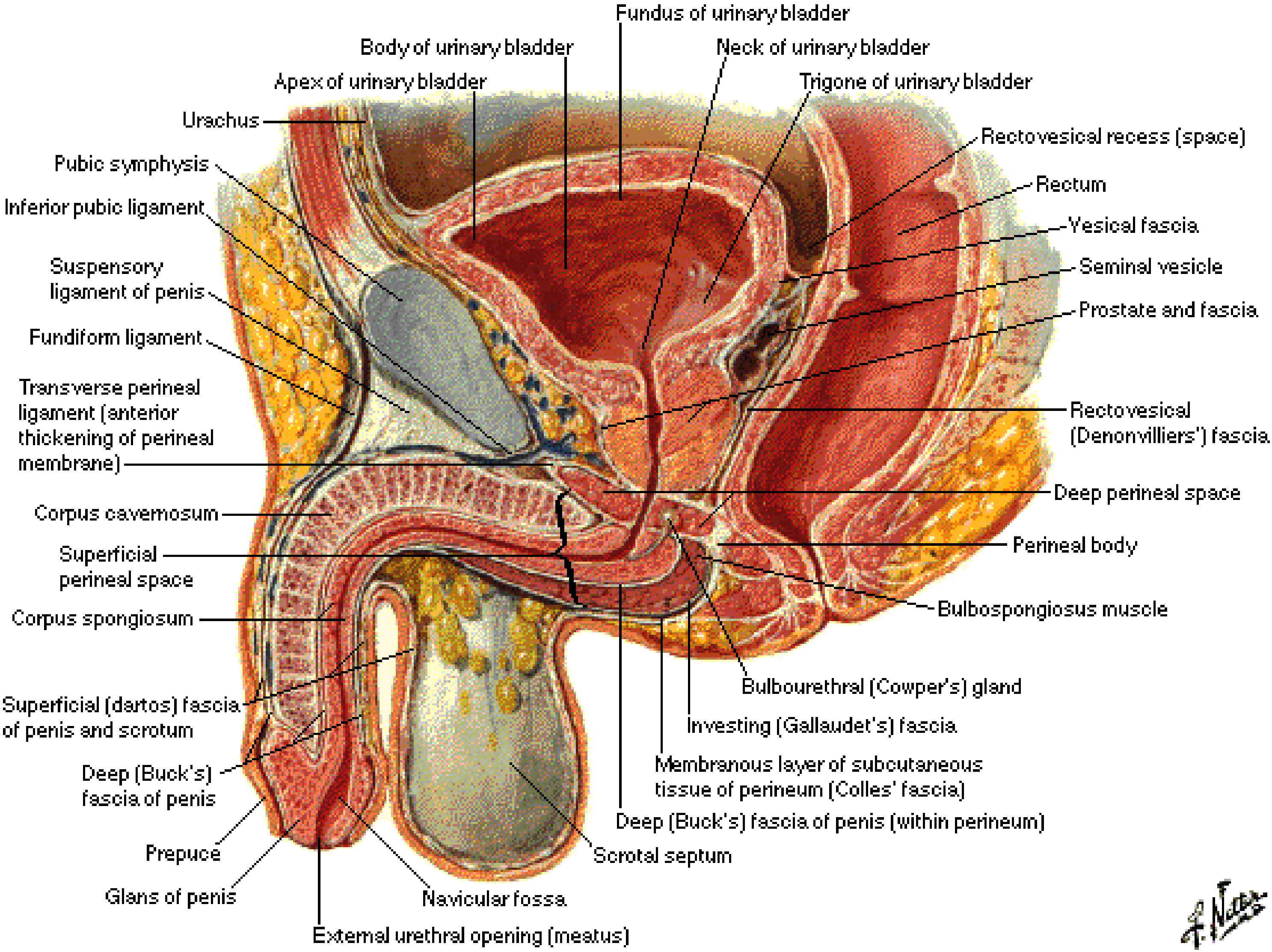


Paramedian Sagittal Section

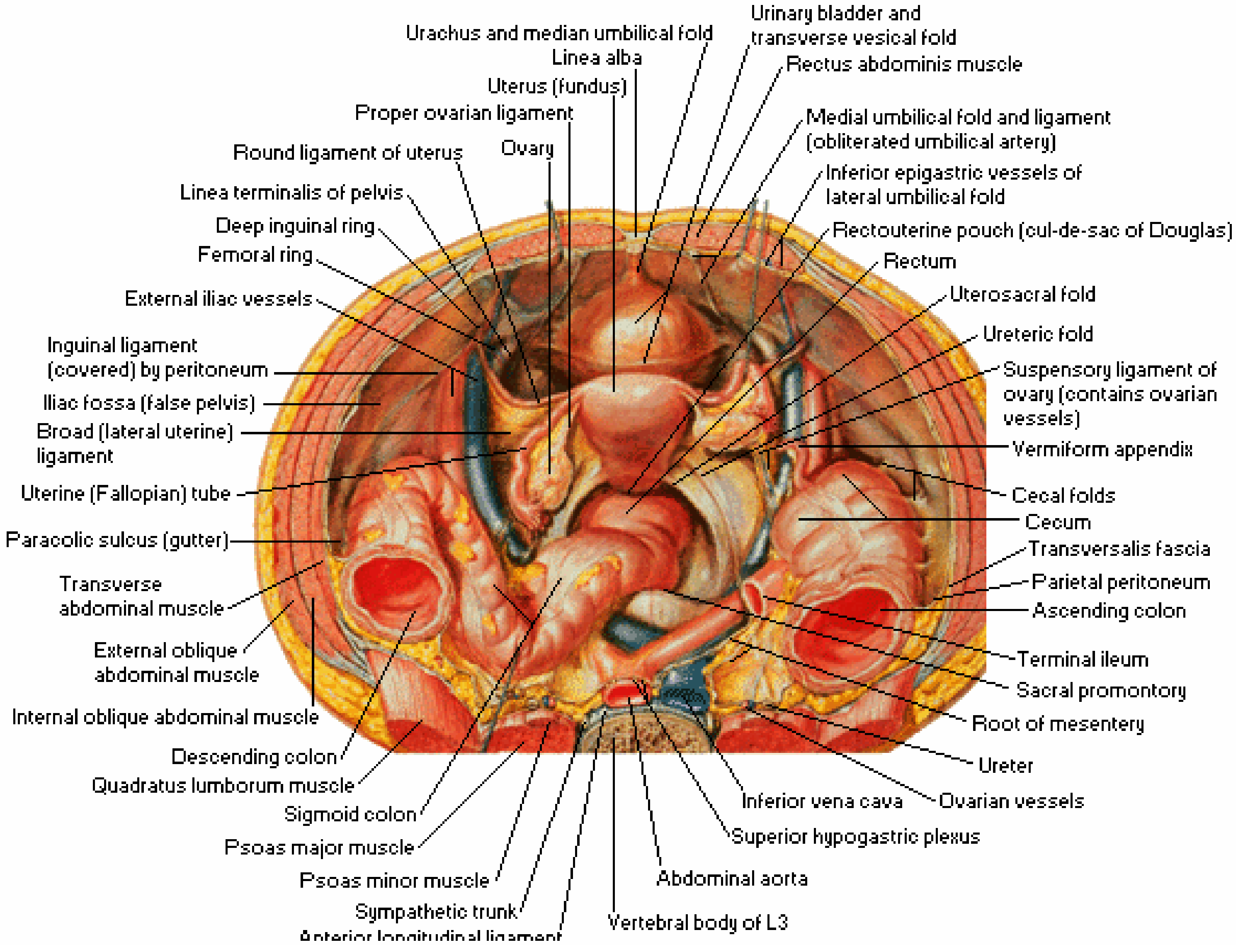


Pelvic Viscera and Perineum of Male

Midsagittal Section

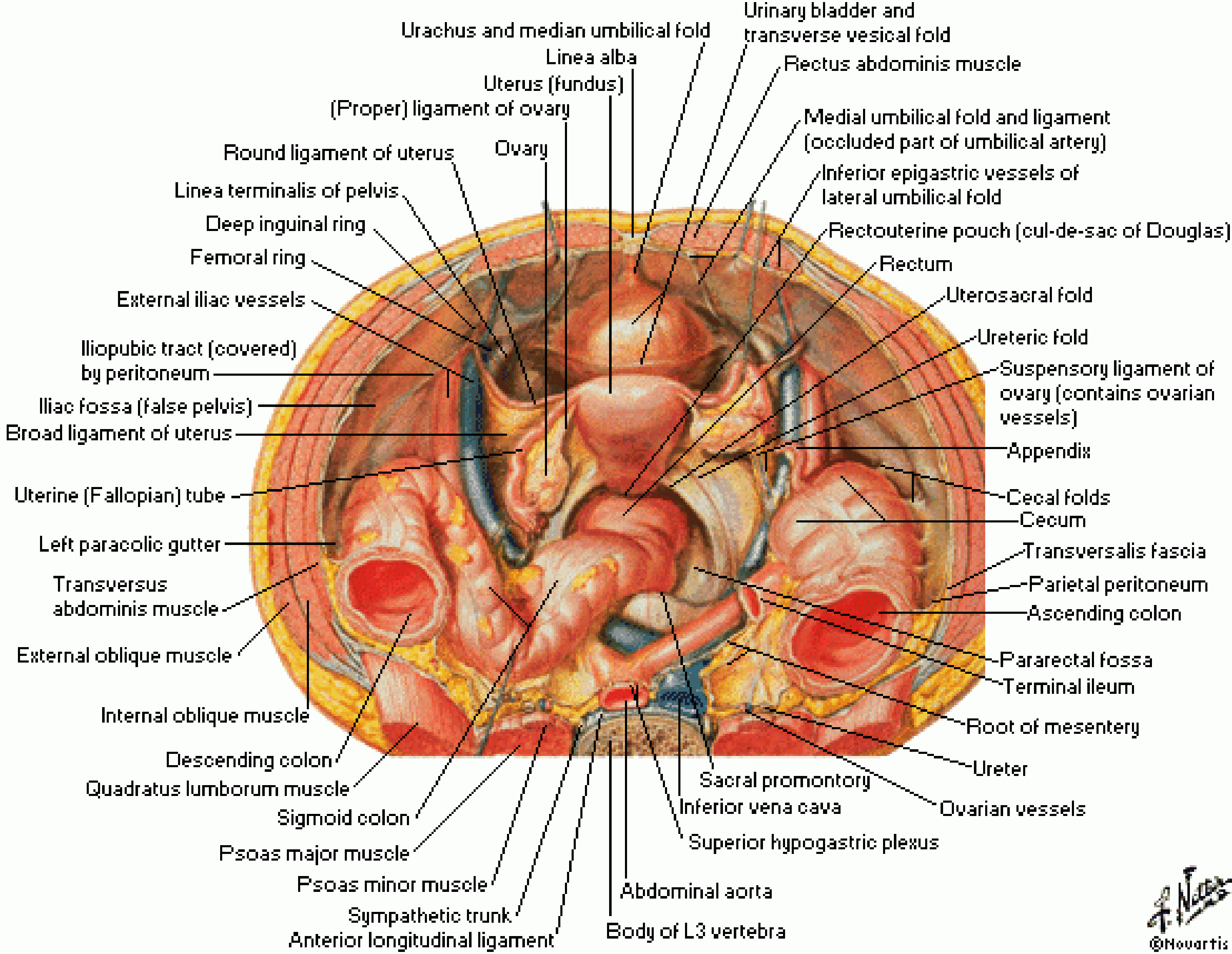


Superior View

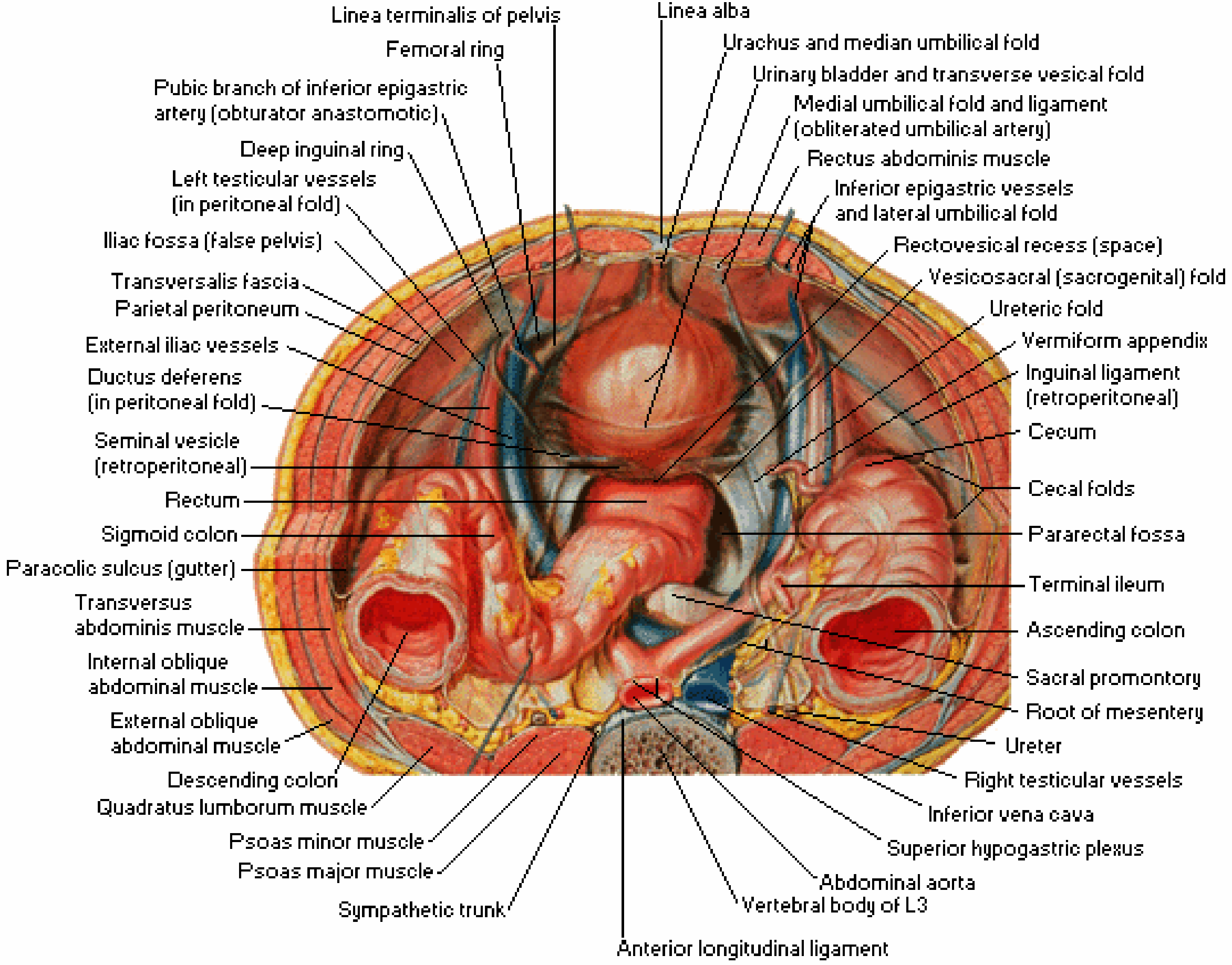


Pelvic Contents of Female

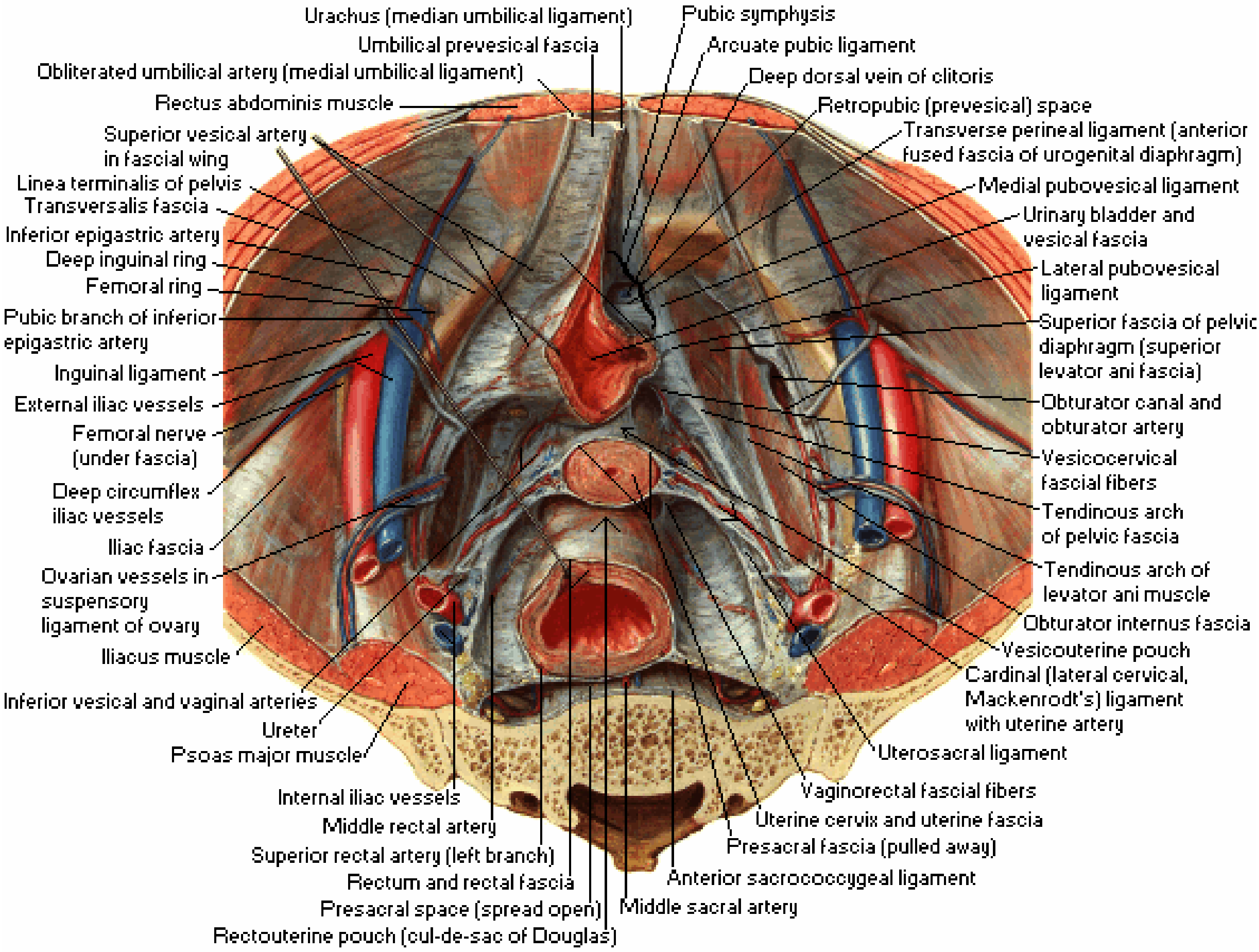
Superior View



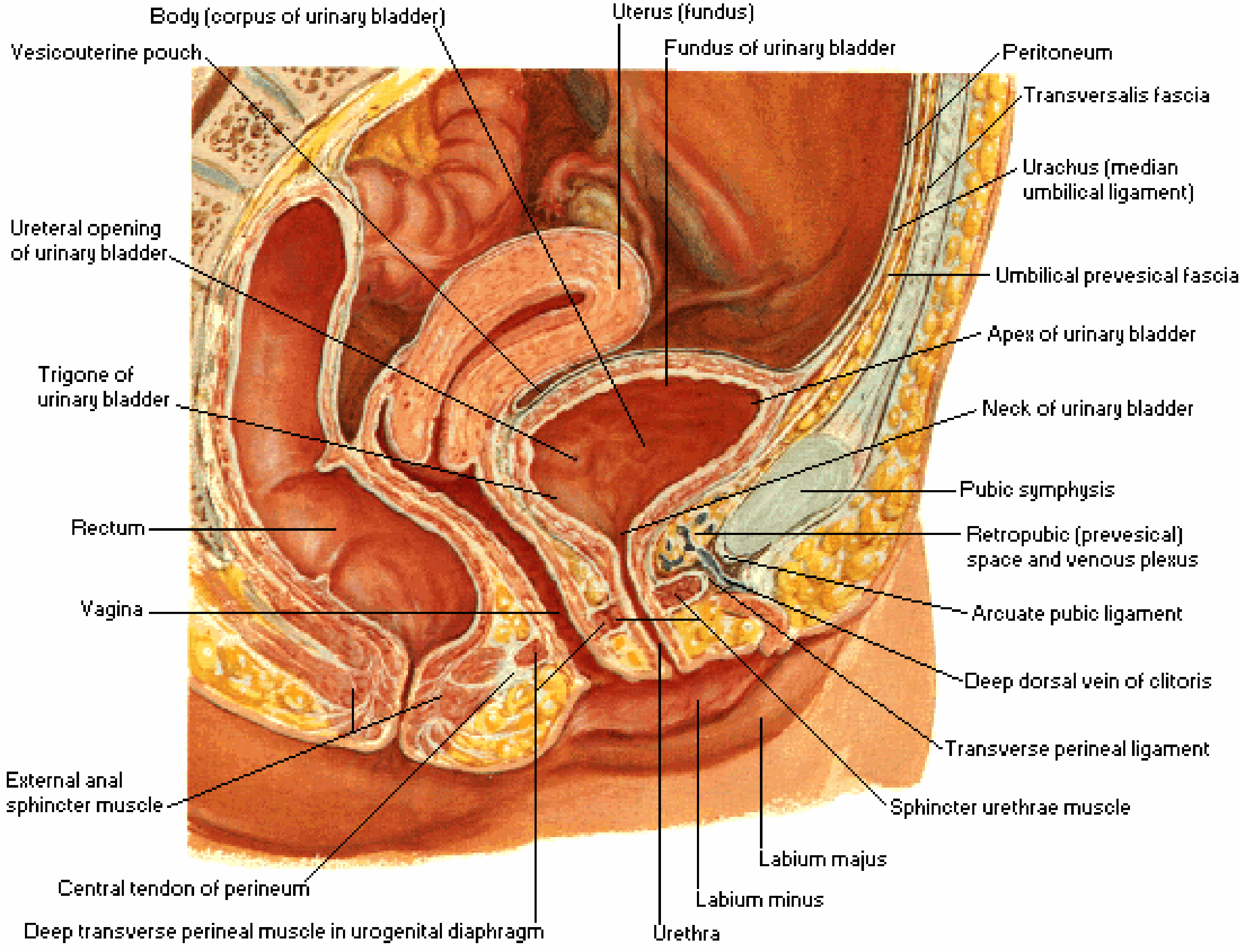
Superior View



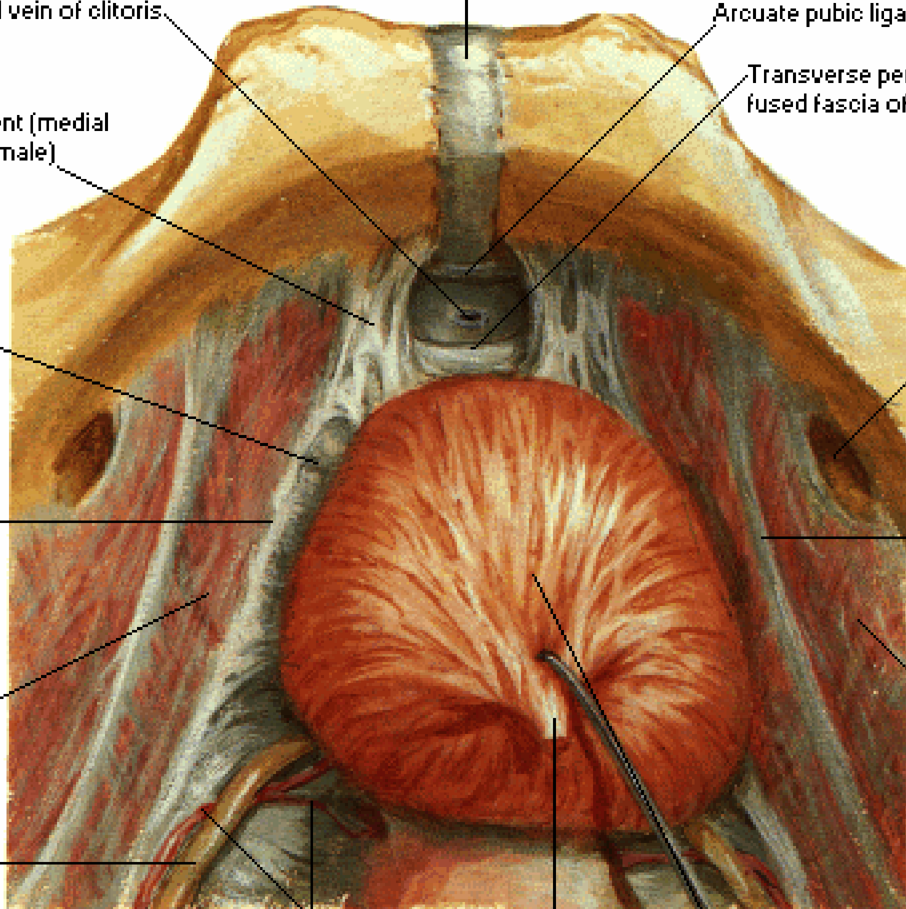
Superior View



Midsagittal Section



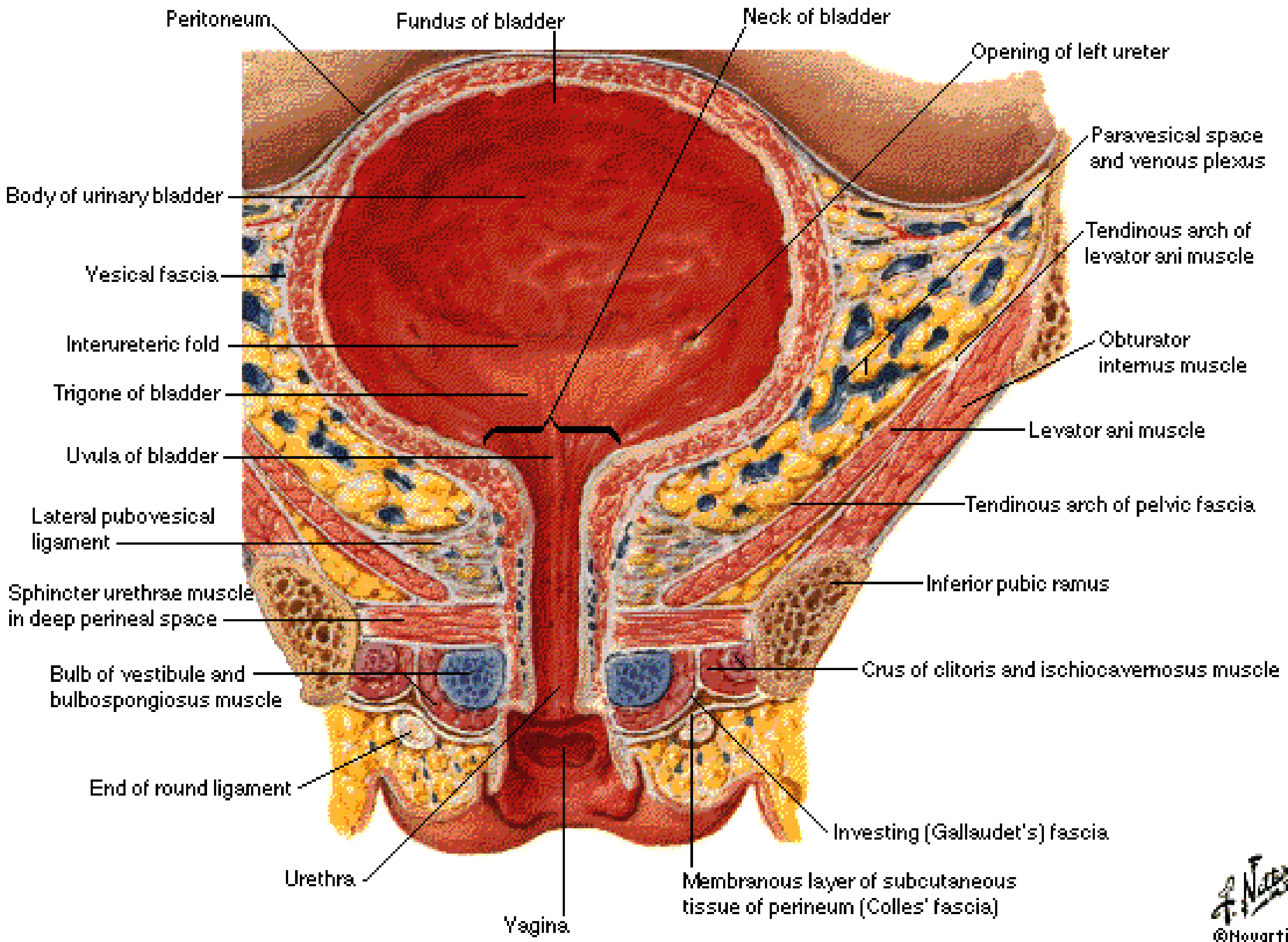
Superior View



Peritoneum removed

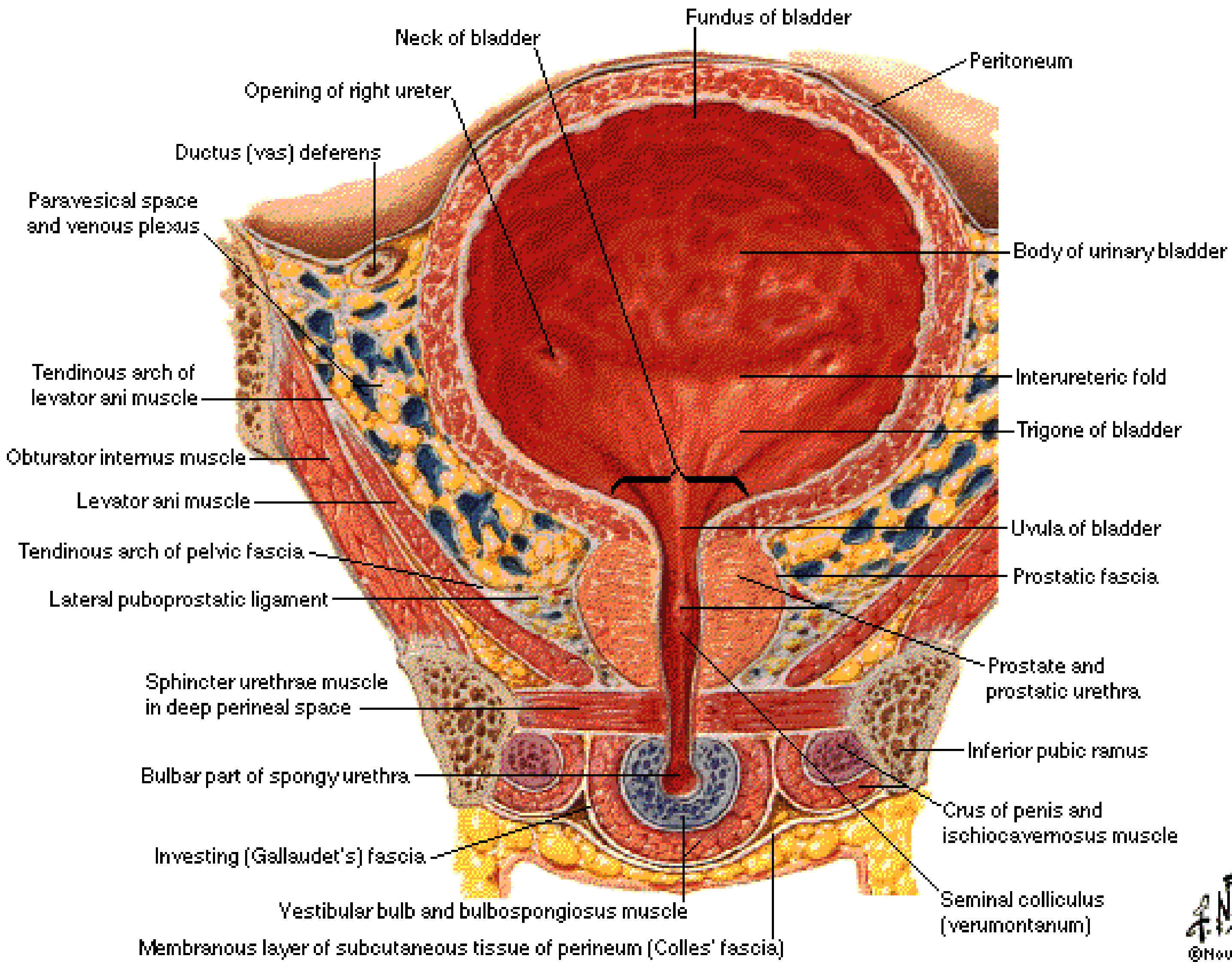
Urinary Bladder of Female

Frontal Section

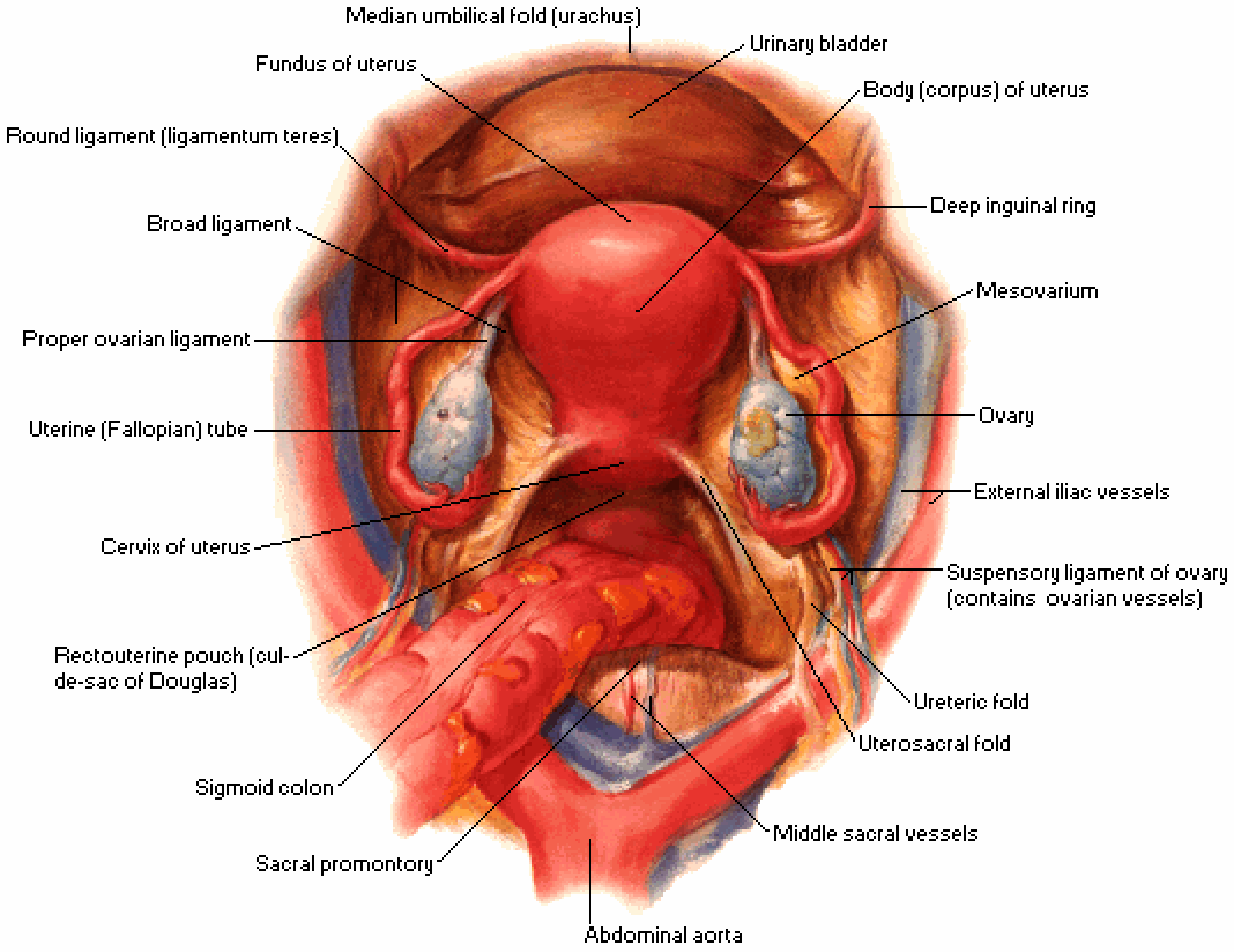


Urinary Bladder of Male

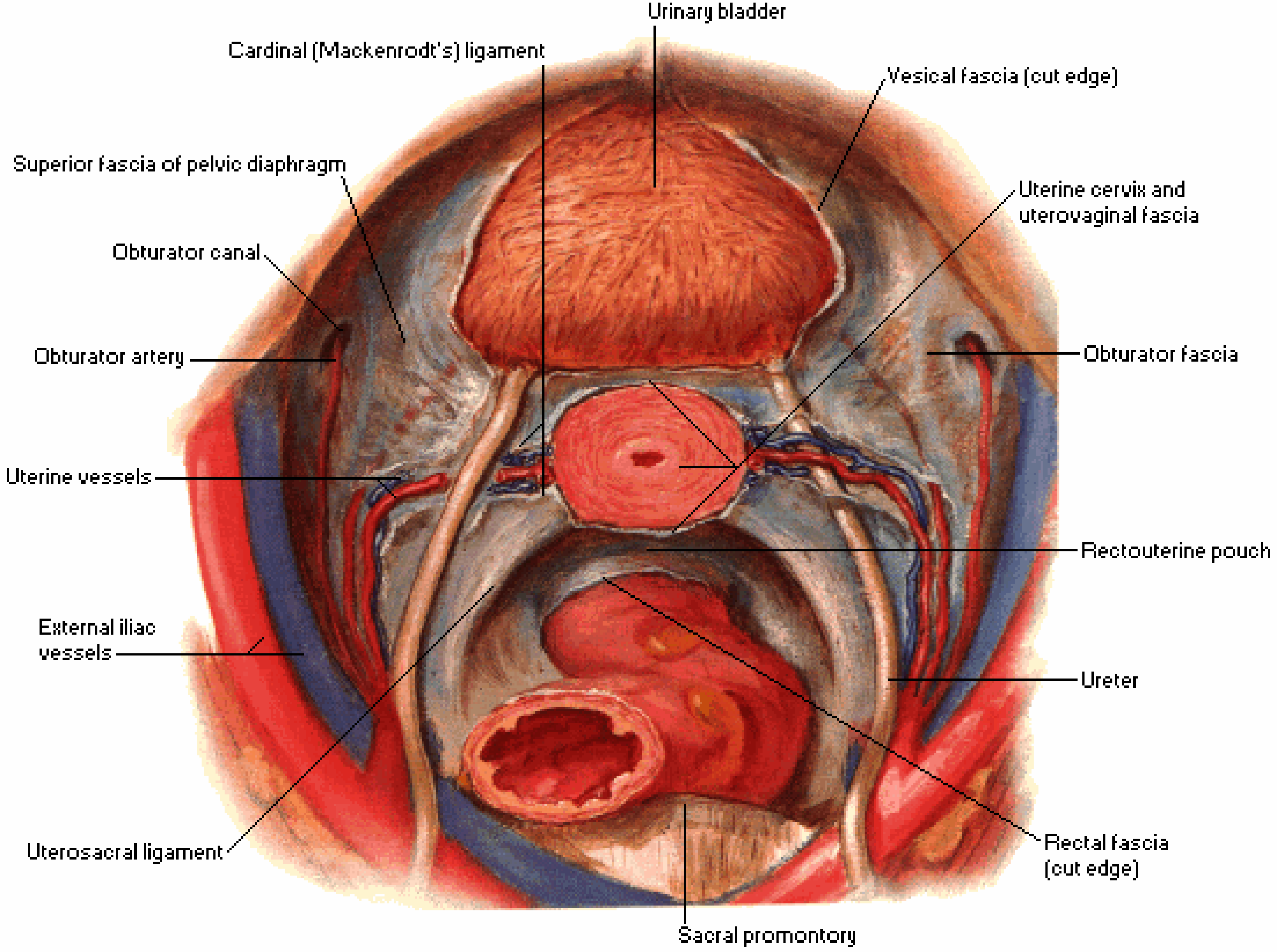
Frontal Section

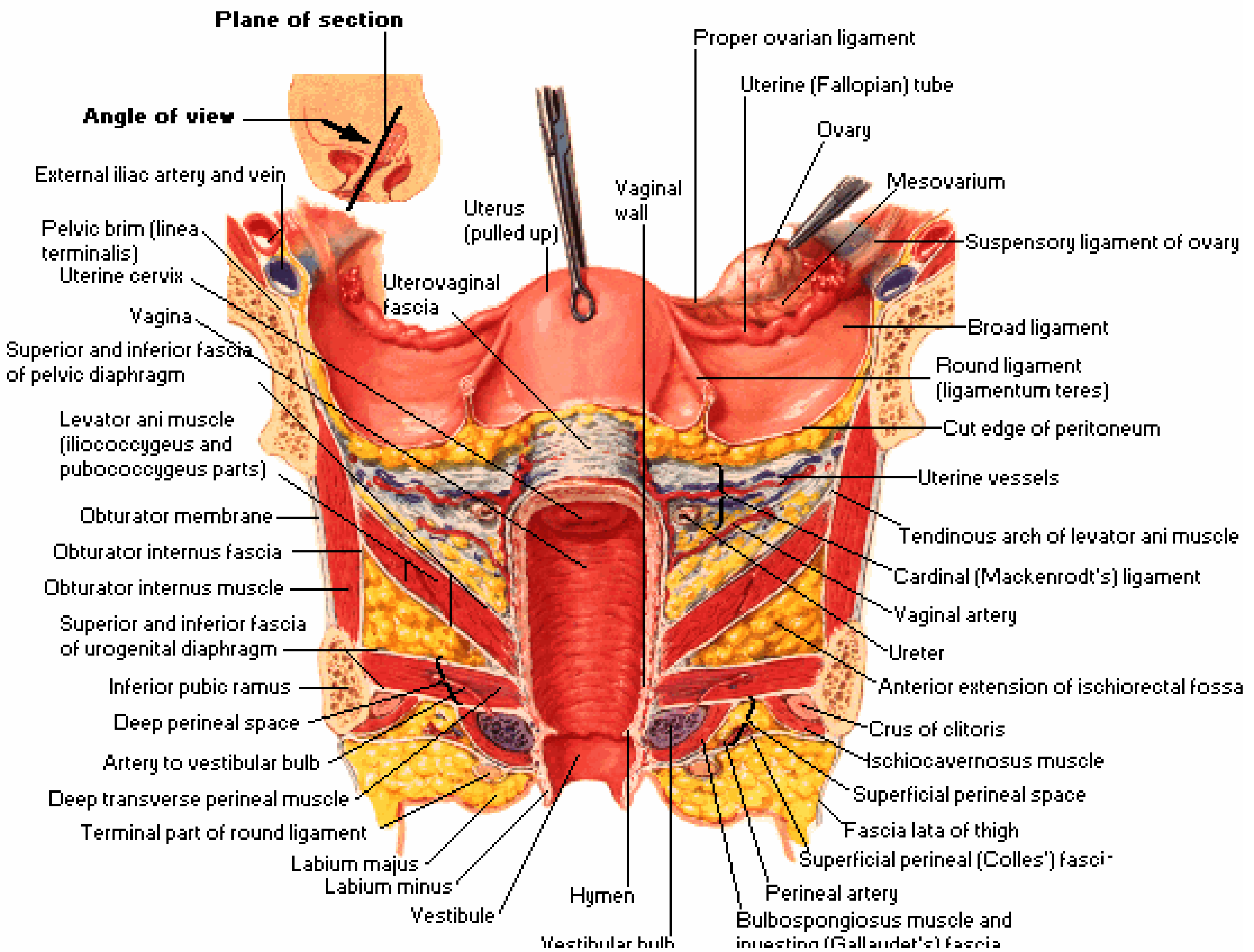


Superior View - Peritoneum Intact



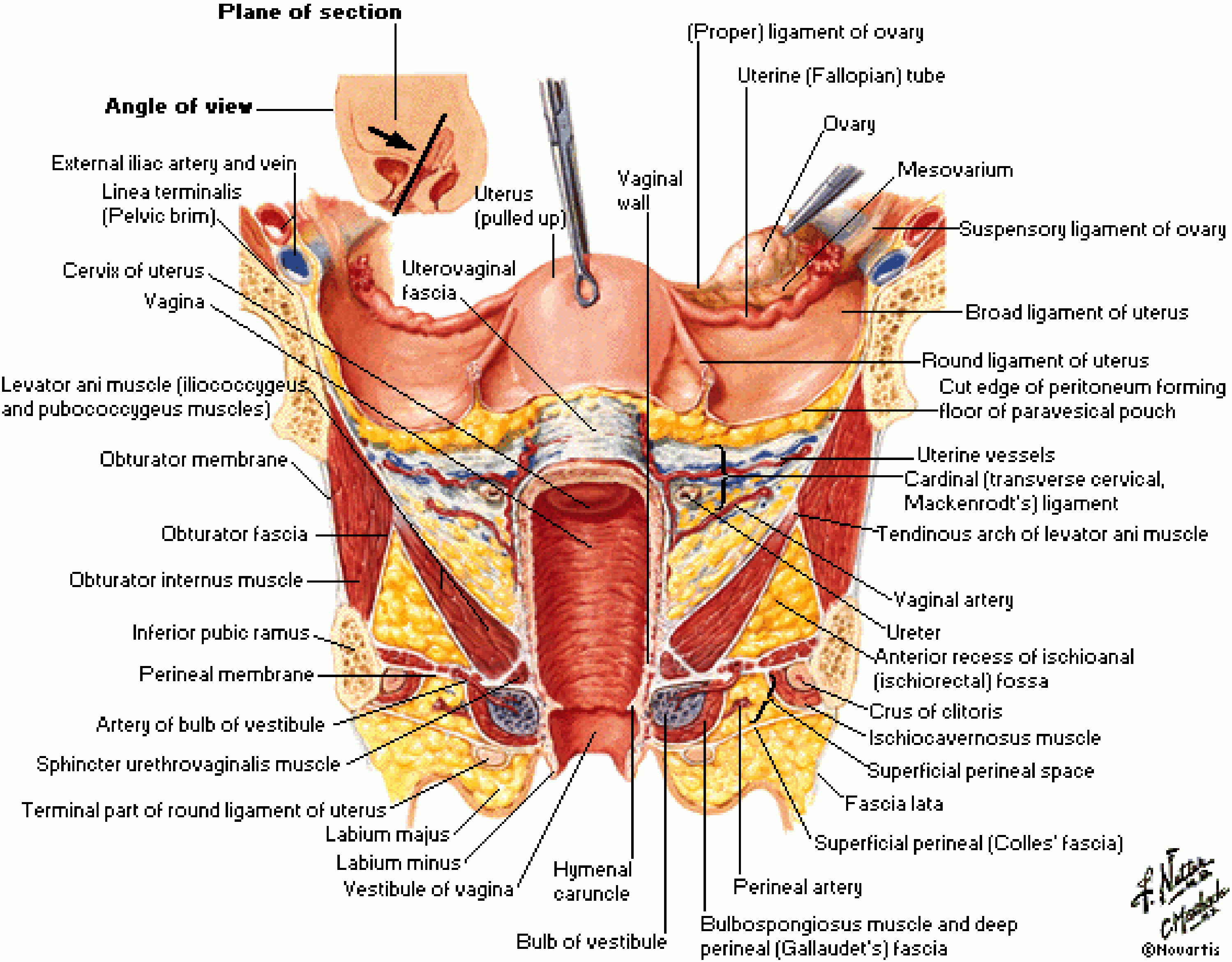
Superior View - Peritoneum Removed



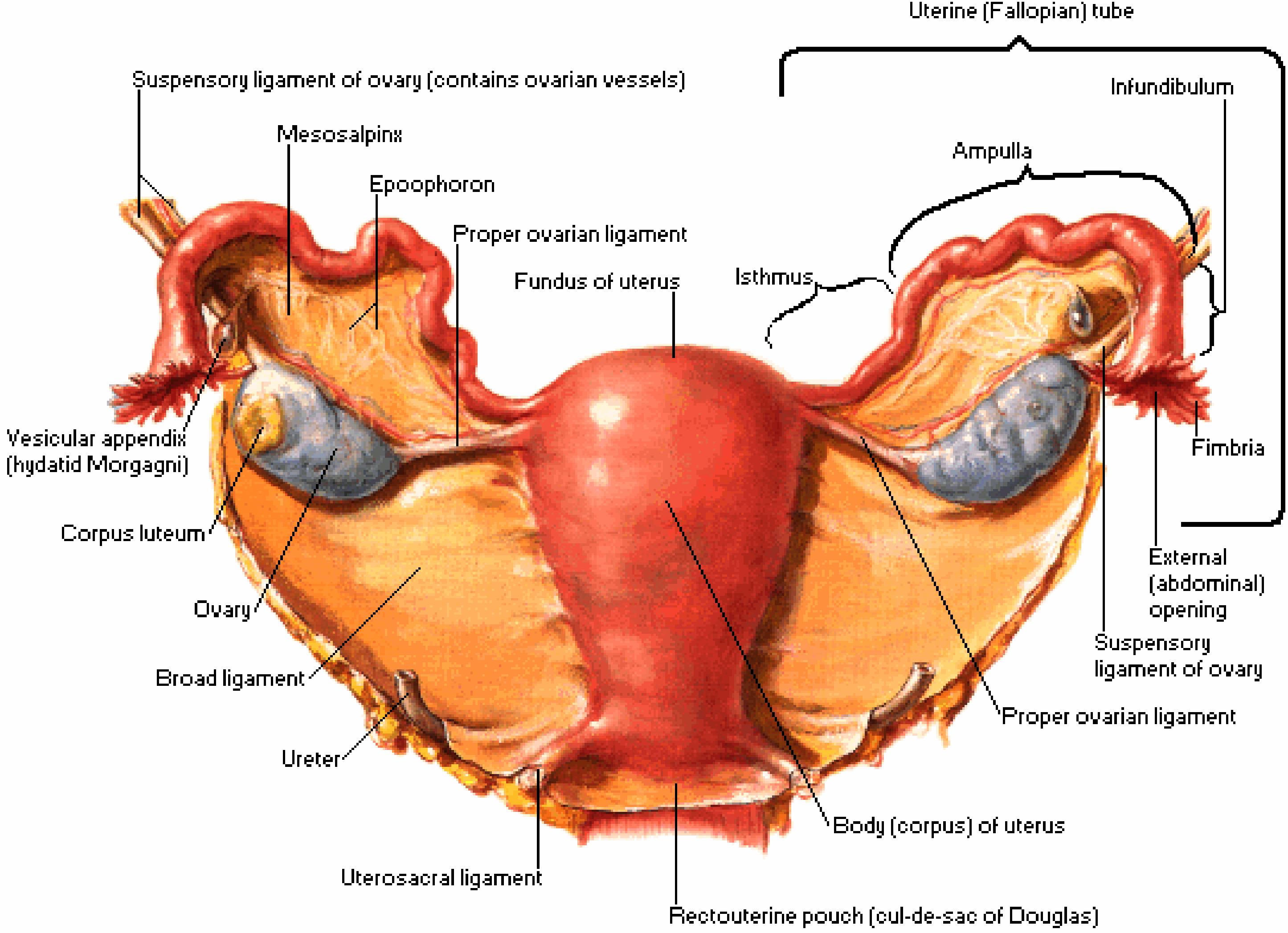


Plane of section
Angle of view
External iliac artery and vein
Pelvic brim (linea terminalis)
Uterine cervix
Vagina
Superior and inferior fascia of pelvic diaphragm
Levator ani muscle (iliococcygeus and pubococcygeus parts)
Obturator membrane
Obturator internus fascia
Obturator internus muscle
Superior and inferior fascia of urogenital diaphragm
Inferior pubic ramus
Deep perineal space
Artery to vestibular bulb
Deep transverse perineal muscle
Terminal part of round ligament
Labium majus
Labium minus
Vestibule
Hymen
Uterus (pulled up)
Uterovaginal fascia
Vaginal wall
Proper ovarian ligament
Uterine (Fallopian) tube
Ovary
Mesovarium
Suspensory ligament of ovary
Broad ligament
Round ligament (ligamentum teres)
Cut edge of peritoneum
Uterine vessels
Tendinous arch of levator ani muscle
Cardinal (Mackenrodt's) ligament
Vaginal artery
Ureter
Anterior extension of ischiorectal fossa
Crus of clitoris
Ischiocavernosus muscle
Superficial perineal space
Fascia lata of thigh
Perineal artery
Bulbospongiosus muscle and

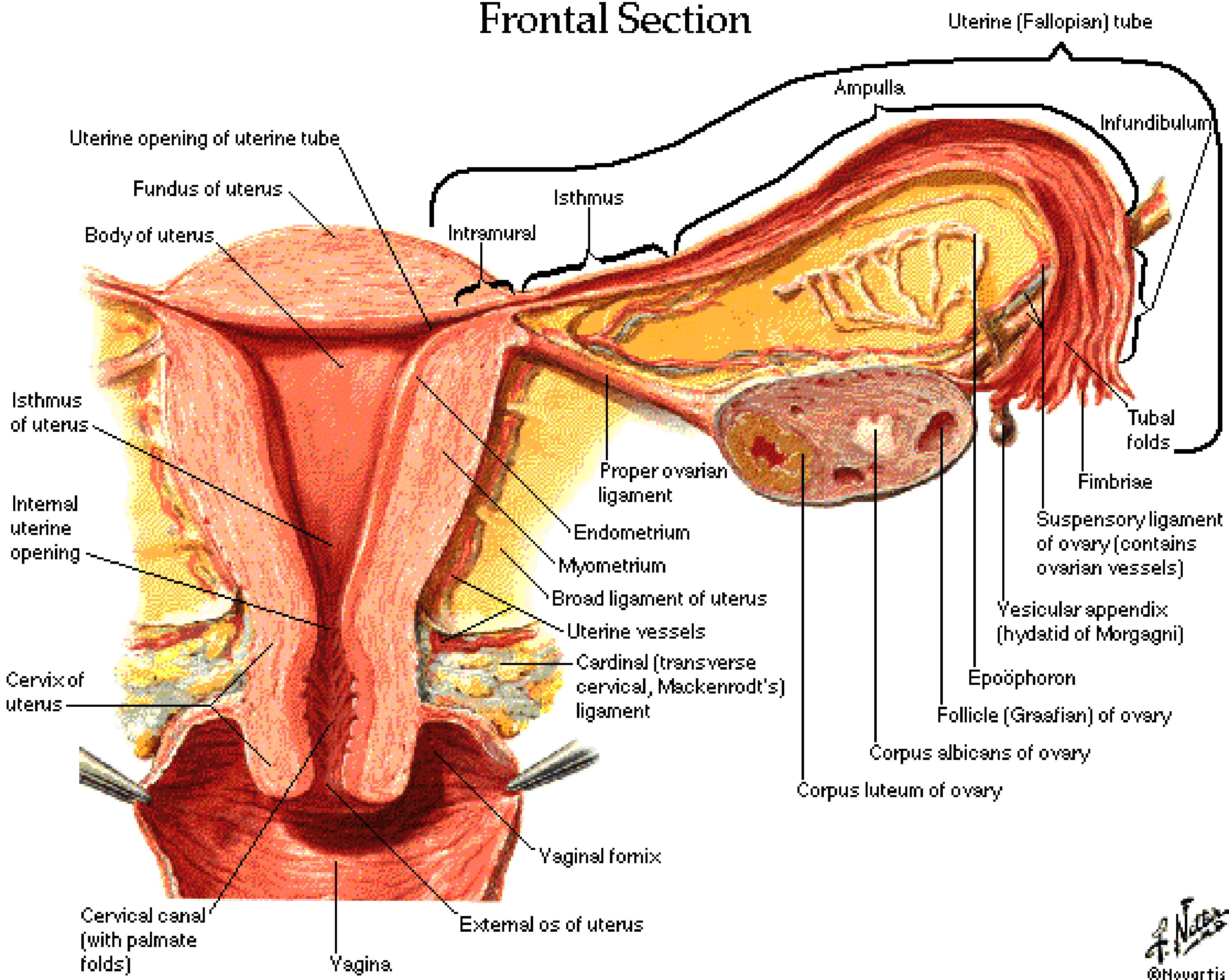
Uterus, Vagina and Supporting Structures



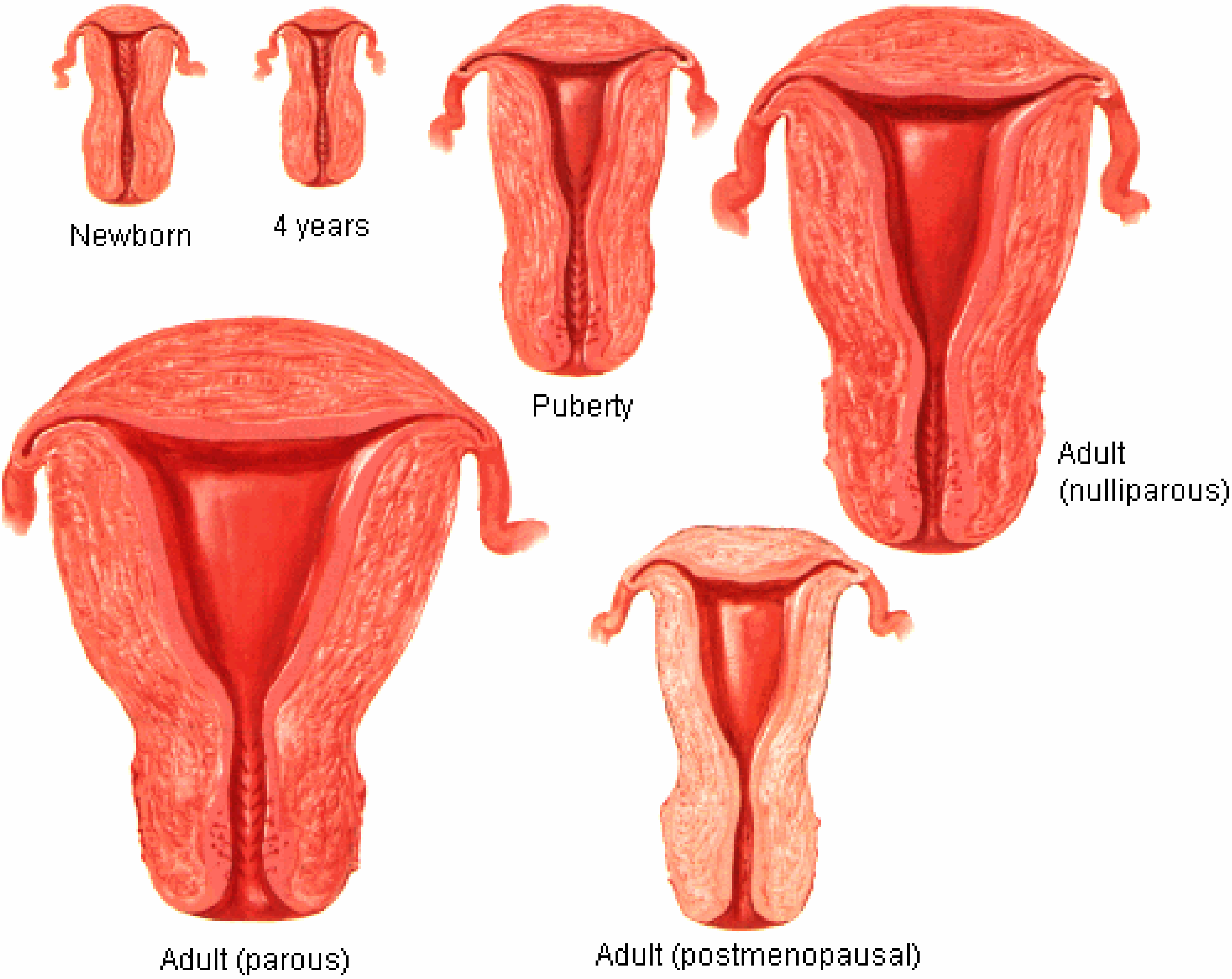
Posterior View



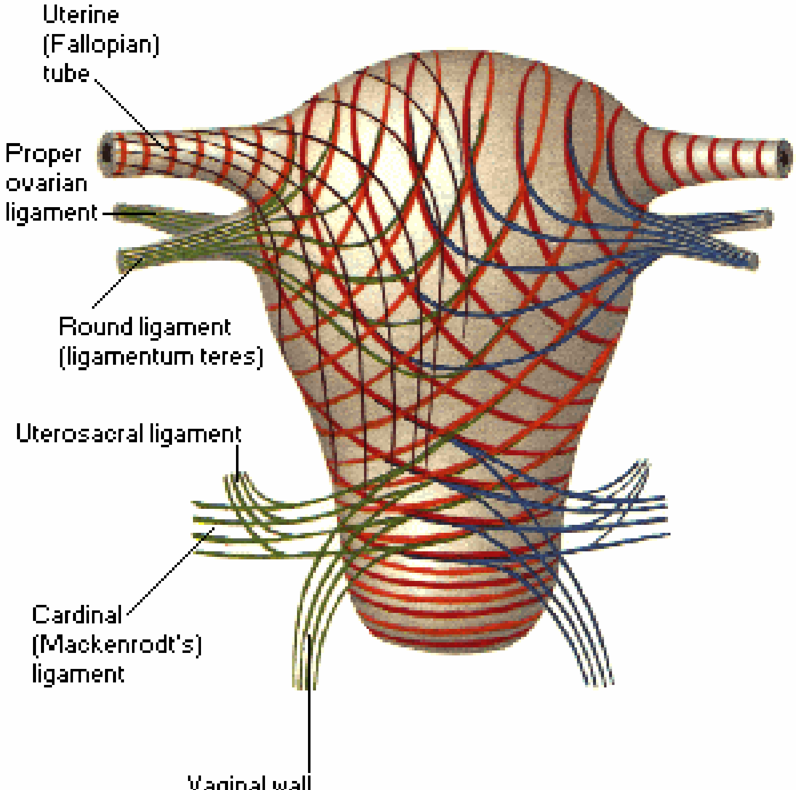
Uterus and Adnexa
Frontal Section

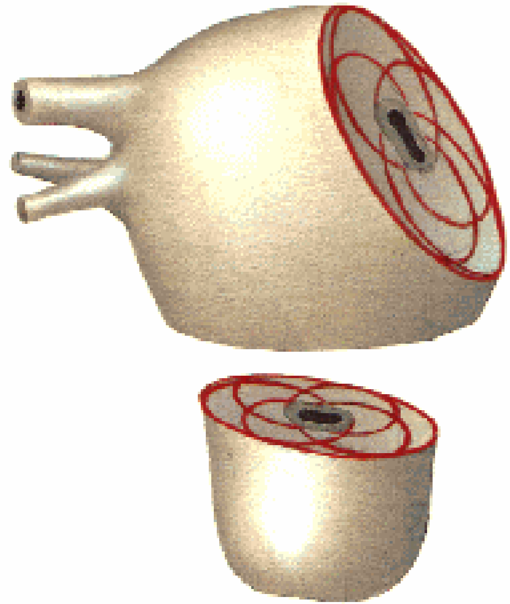


Changes with Age



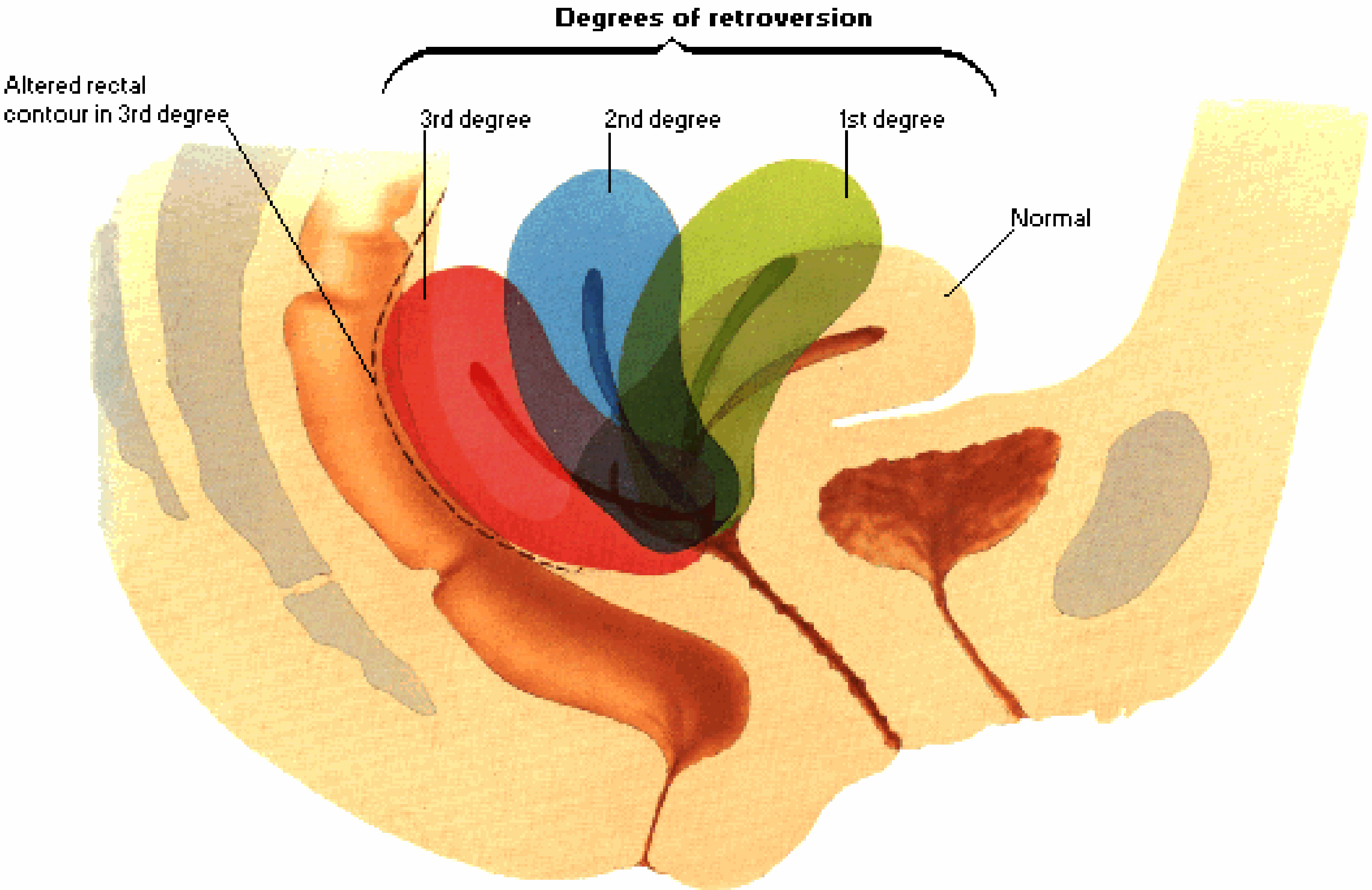
Schema of Musculature



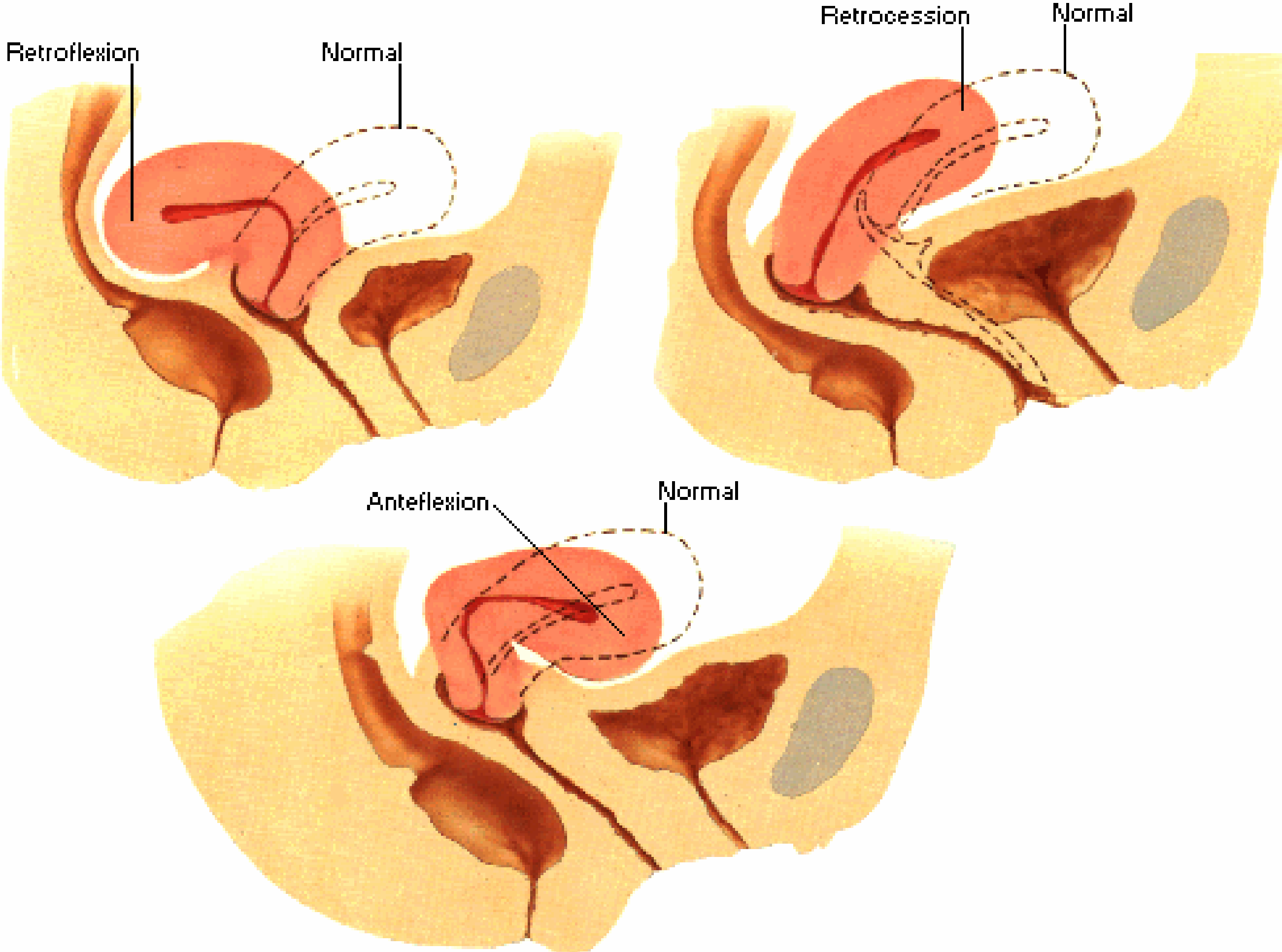


Spiral fibers pass deeply into wall and interlace (schema)

Variations in Position

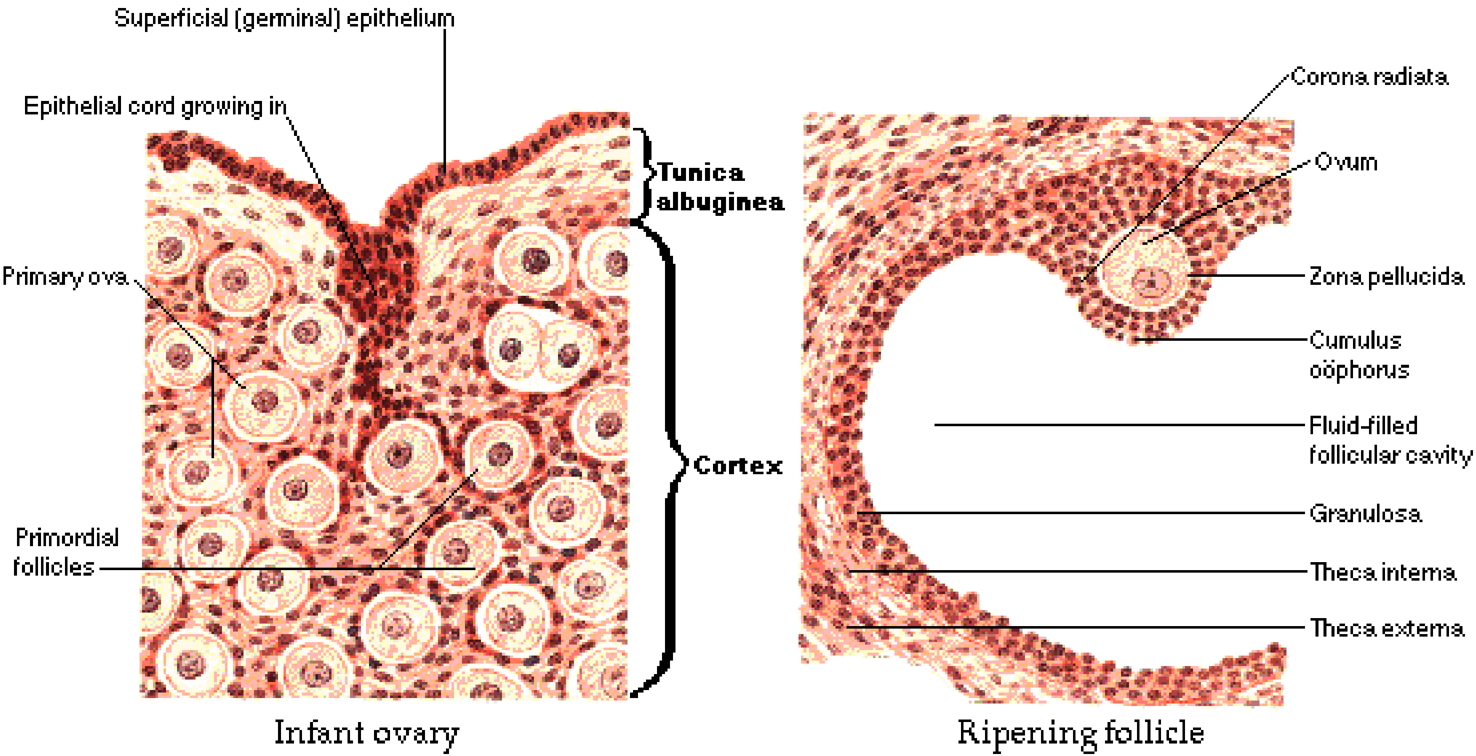


Variations in Position

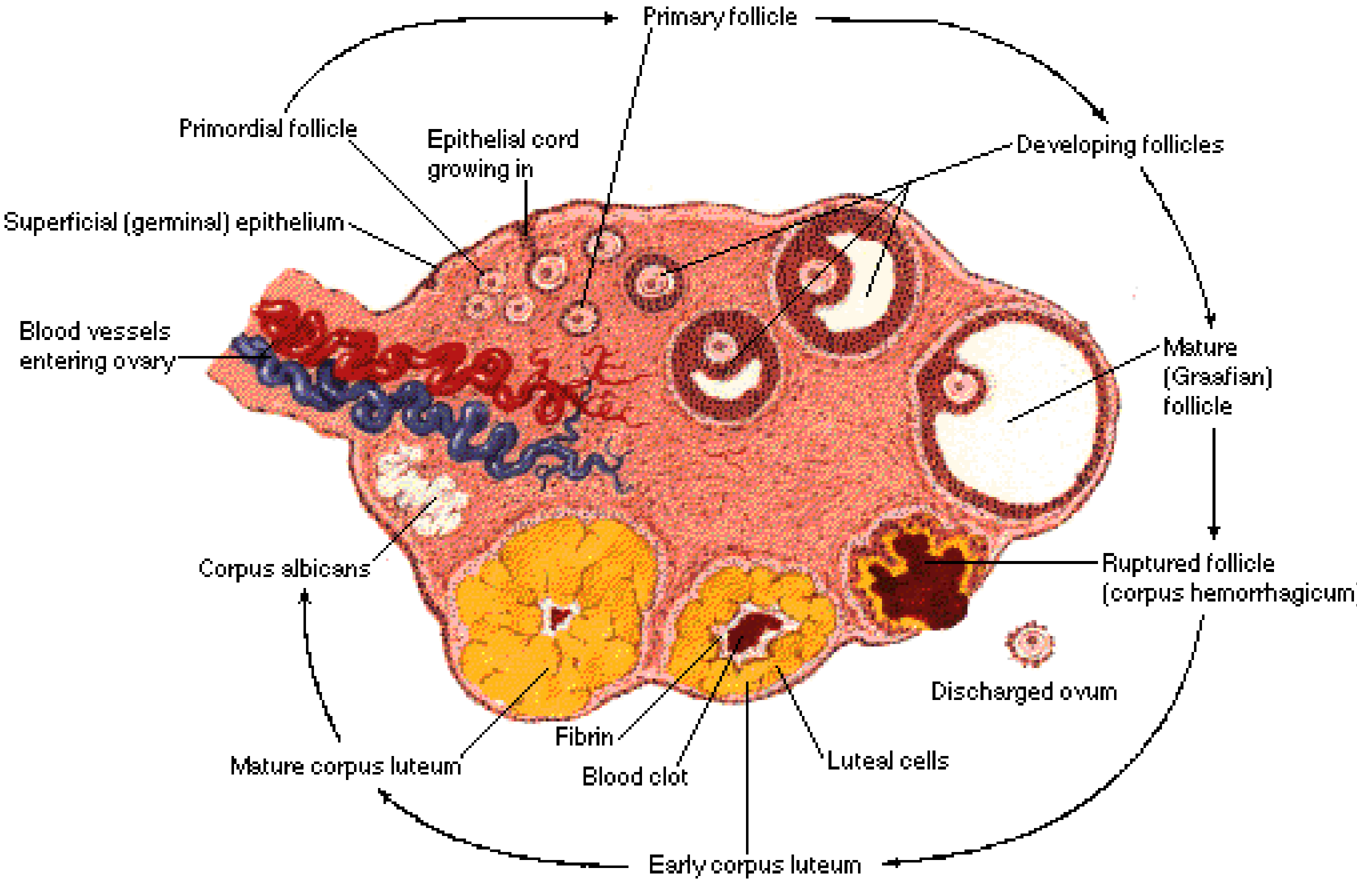


Infant Ovary and Ripening Follicle

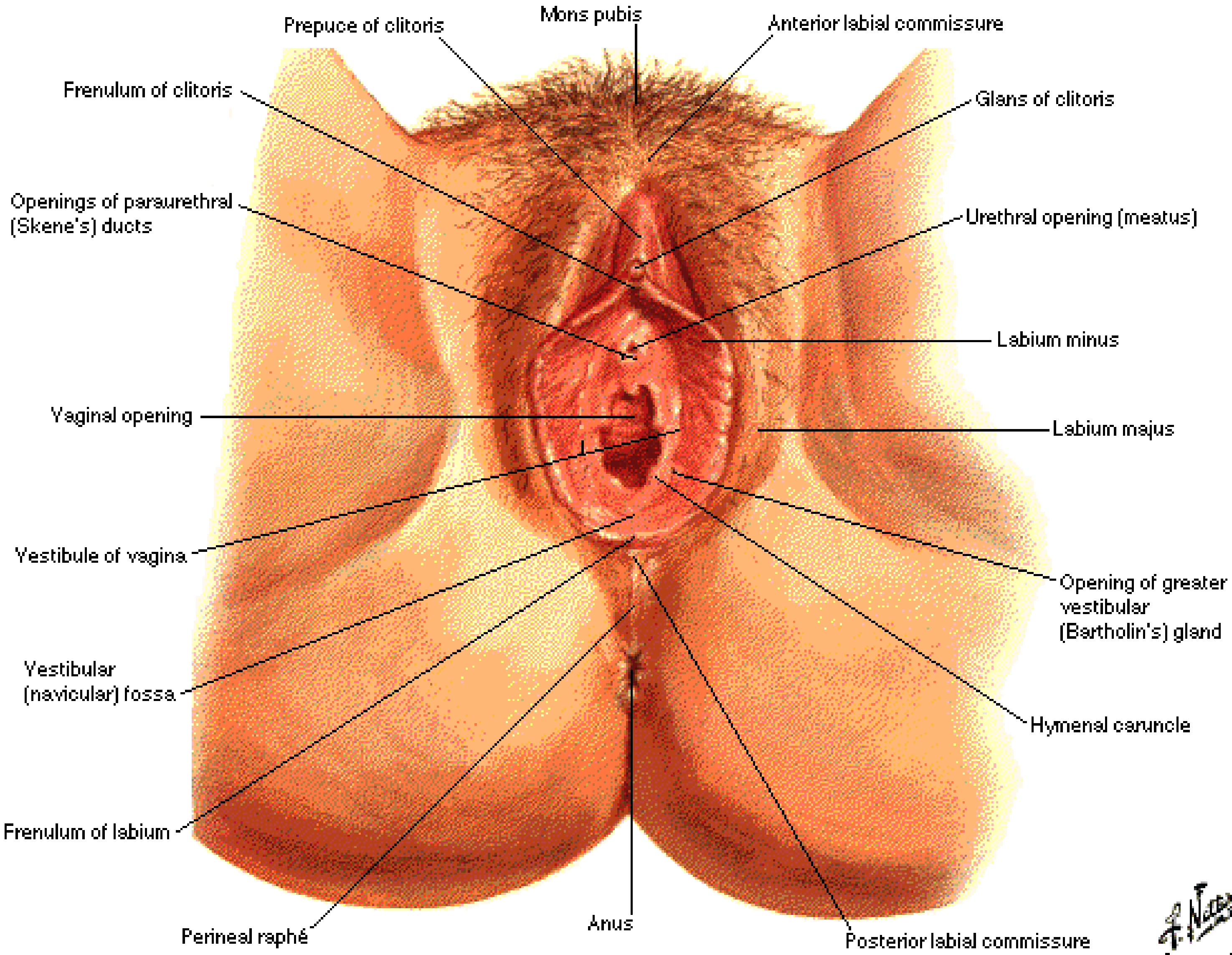
Histology

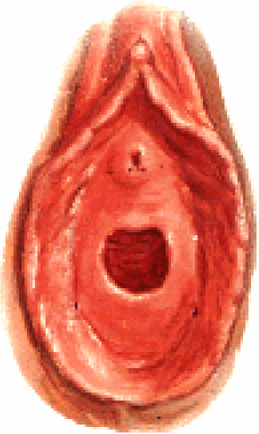


Stages of Ovum and Follicle

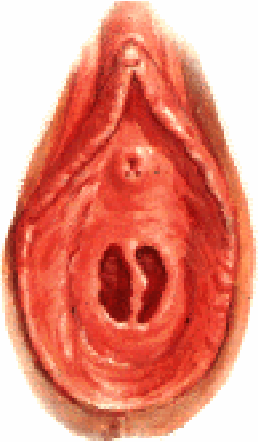


Perineum and External Genitalia of Female

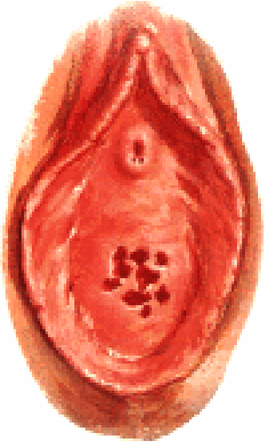




Annular hymen



Septate hymen

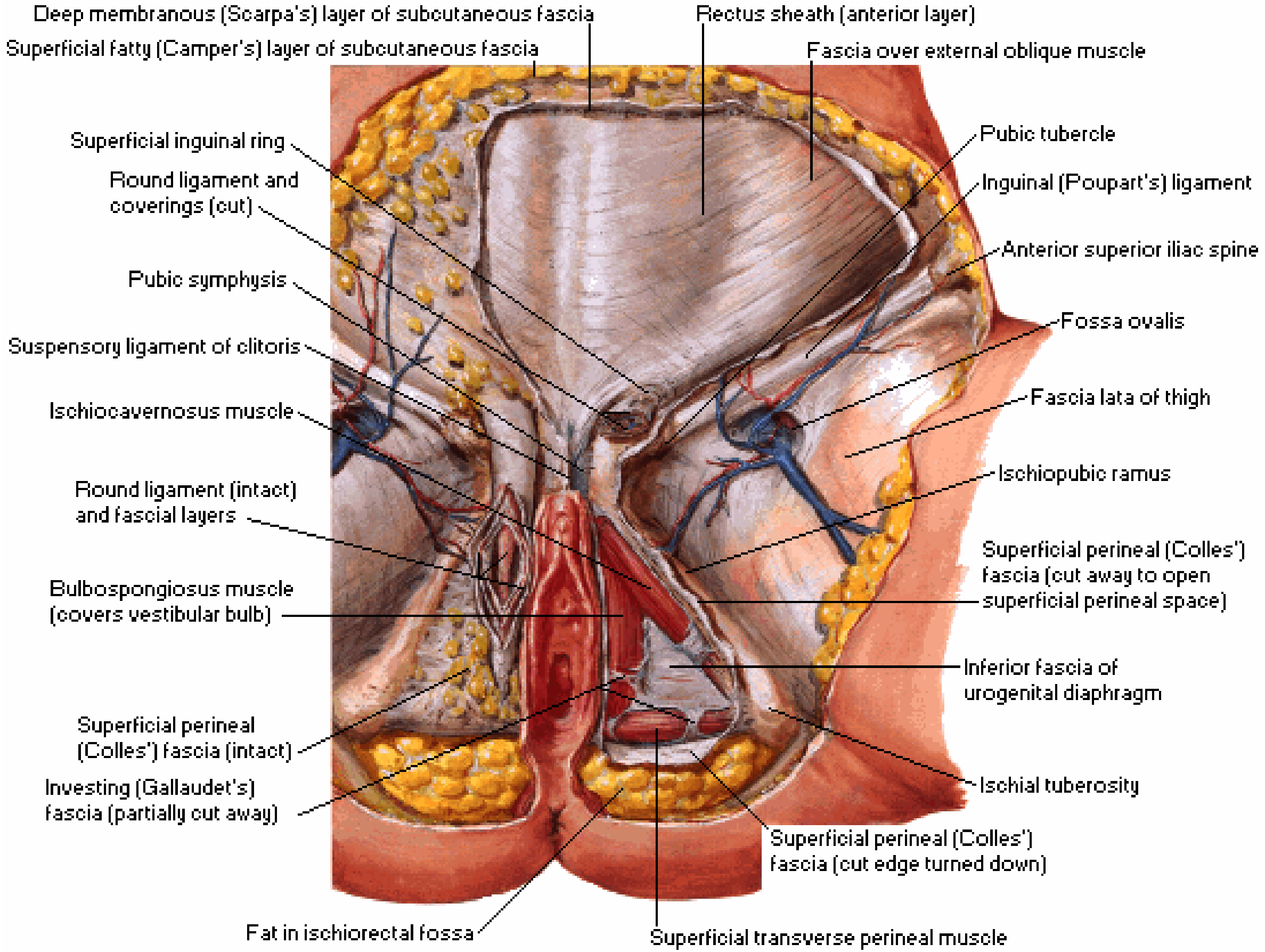


Cribriform hymen

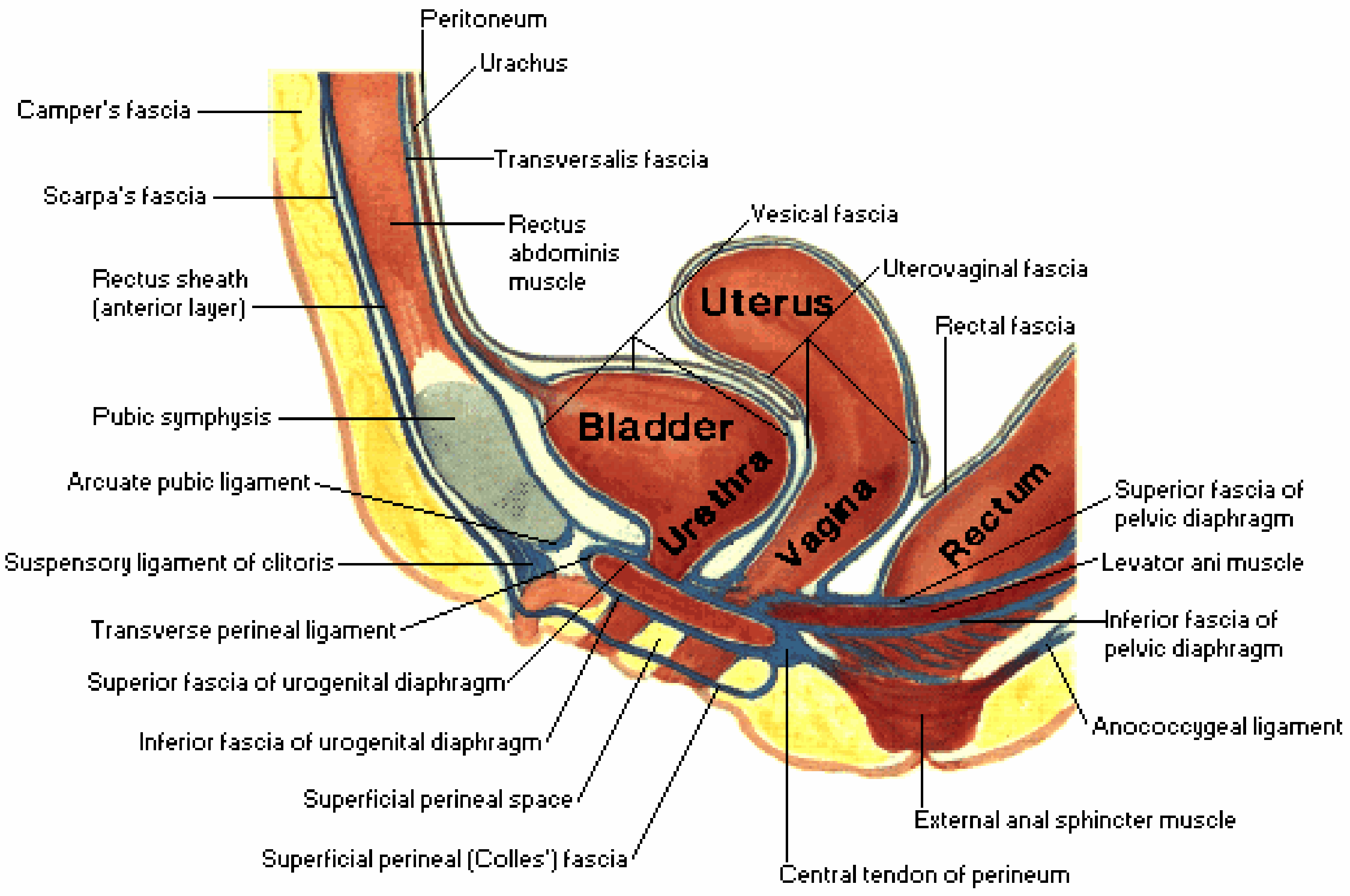


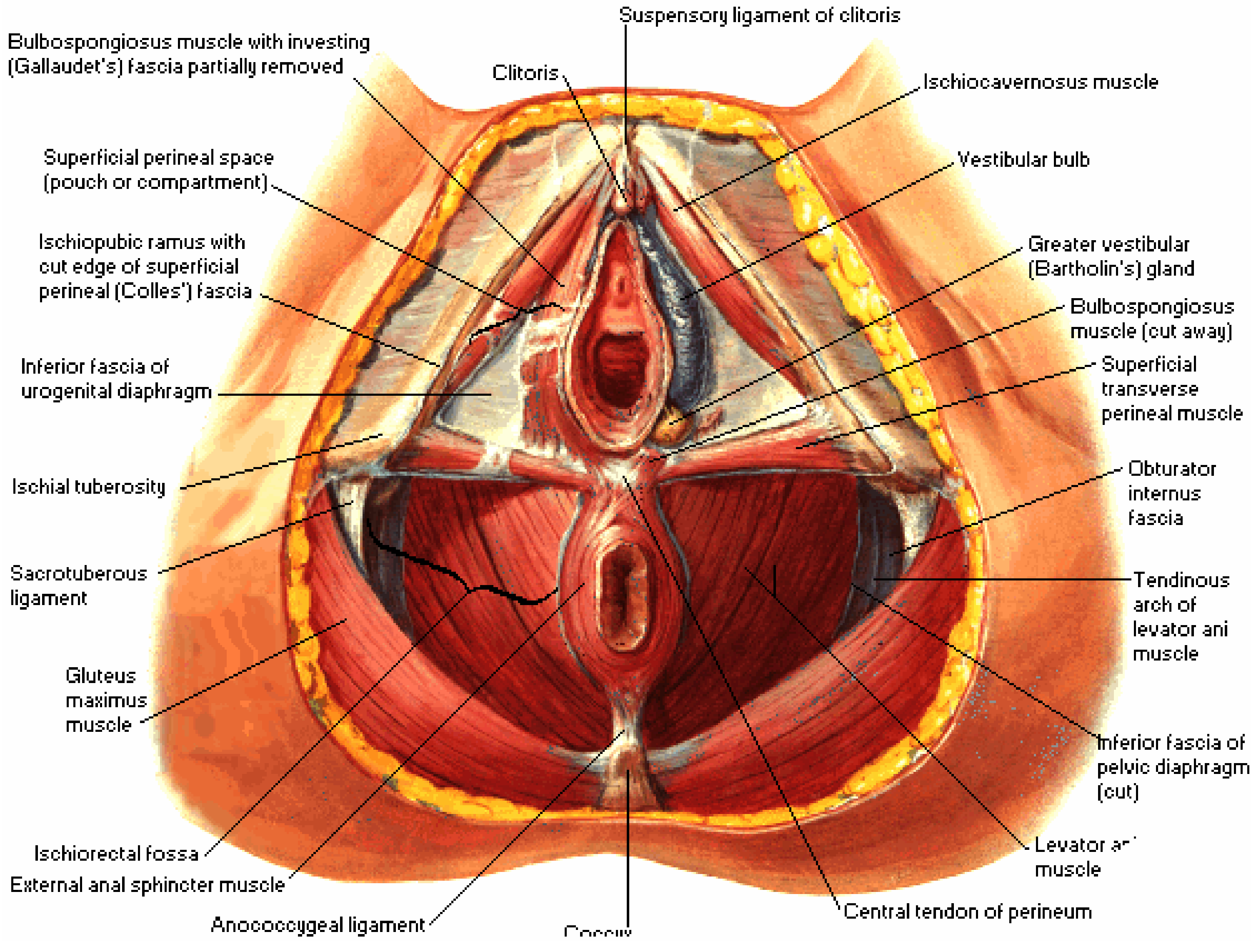
Parous introitus

Superficial Dissection

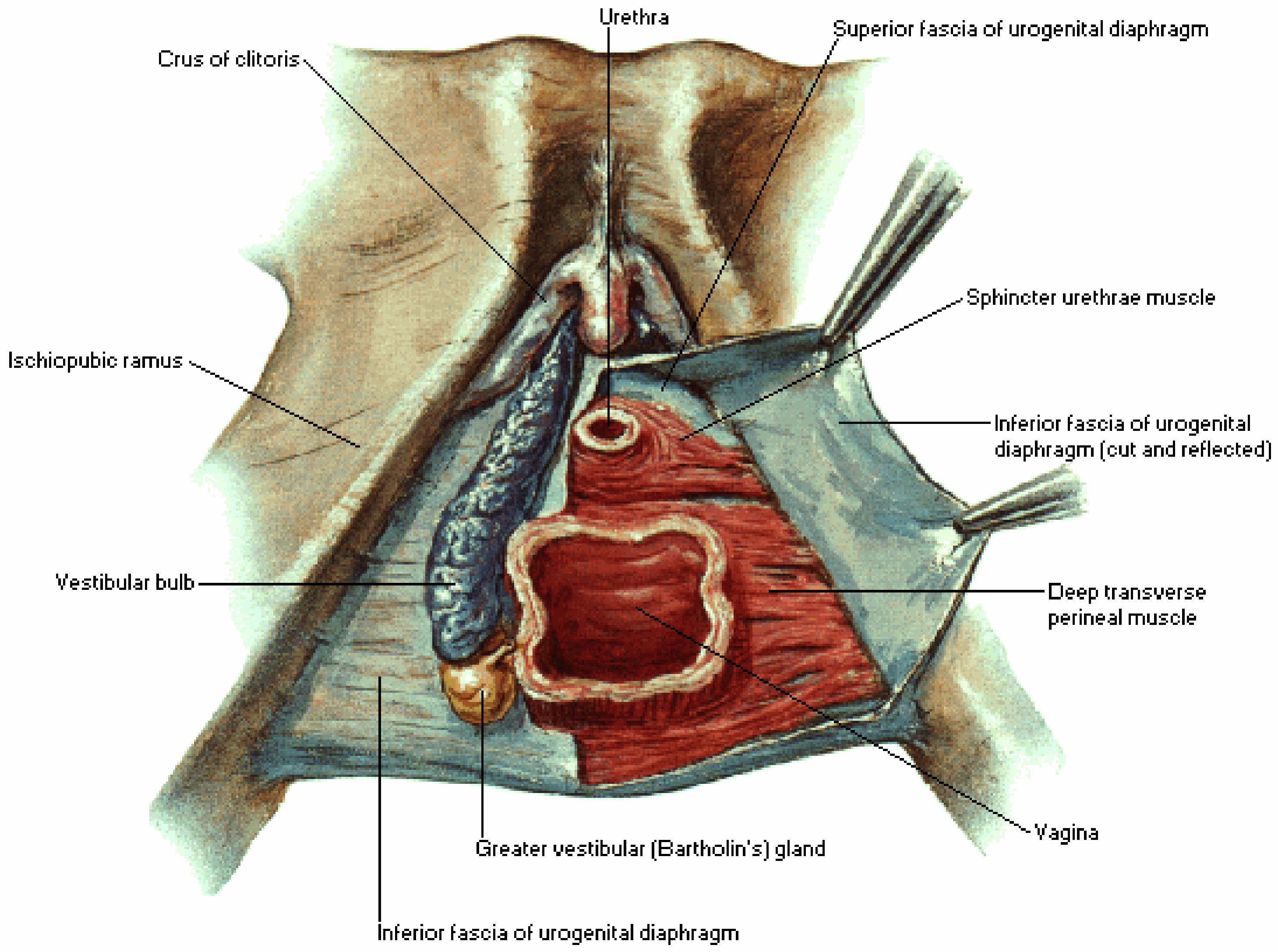


Midsagittal Section

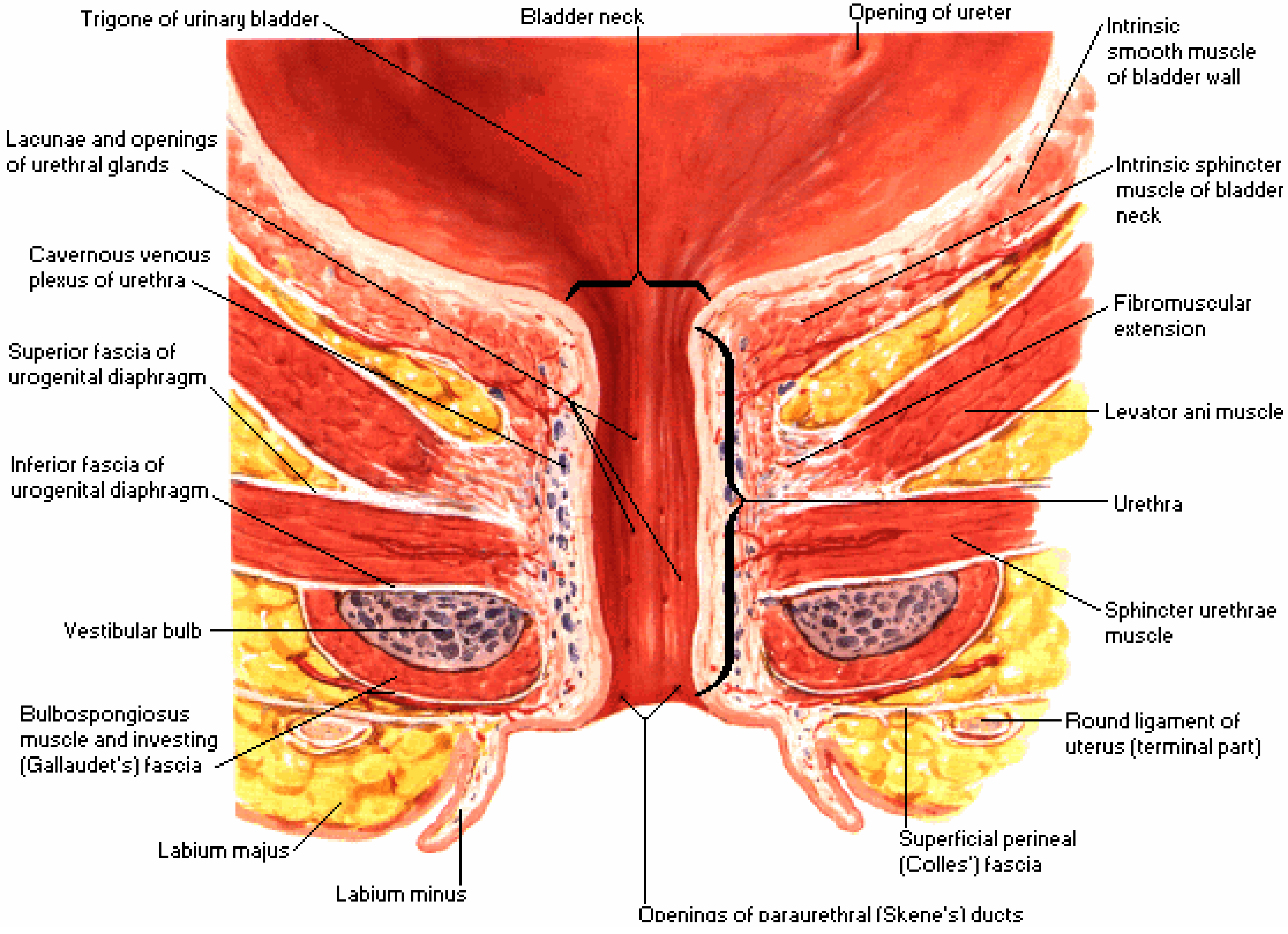



Suspensory ligament of clitoris
Bulbospongiosus muscle with investing (Gallaudet's) fascia partially removed
Clitoris
Ischiocavernosus muscle
Superficial perineal space (pouch or compartment)
Vestibular bulb
Ischiopubic ramus with cut edge of superficial perineal (Colles') fascia
Greater vestibular (Bartholin's) gland
Bulbospongiosus muscle (cut away)
Inferior fascia of urogenital diaphragm
Superficial transverse perineal muscle
Ischial tuberosity
Obturator internus fascia
Sacrotuberous ligament
Tendinous arch of levator ani muscle
Gluteus maximus muscle
Inferior fascia of pelvic diaphragm (cut)
Ischiorectal fossa
Levator a
muscle
External anal sphincter muscle
Central tendon of perineum
Anococcygeal ligament

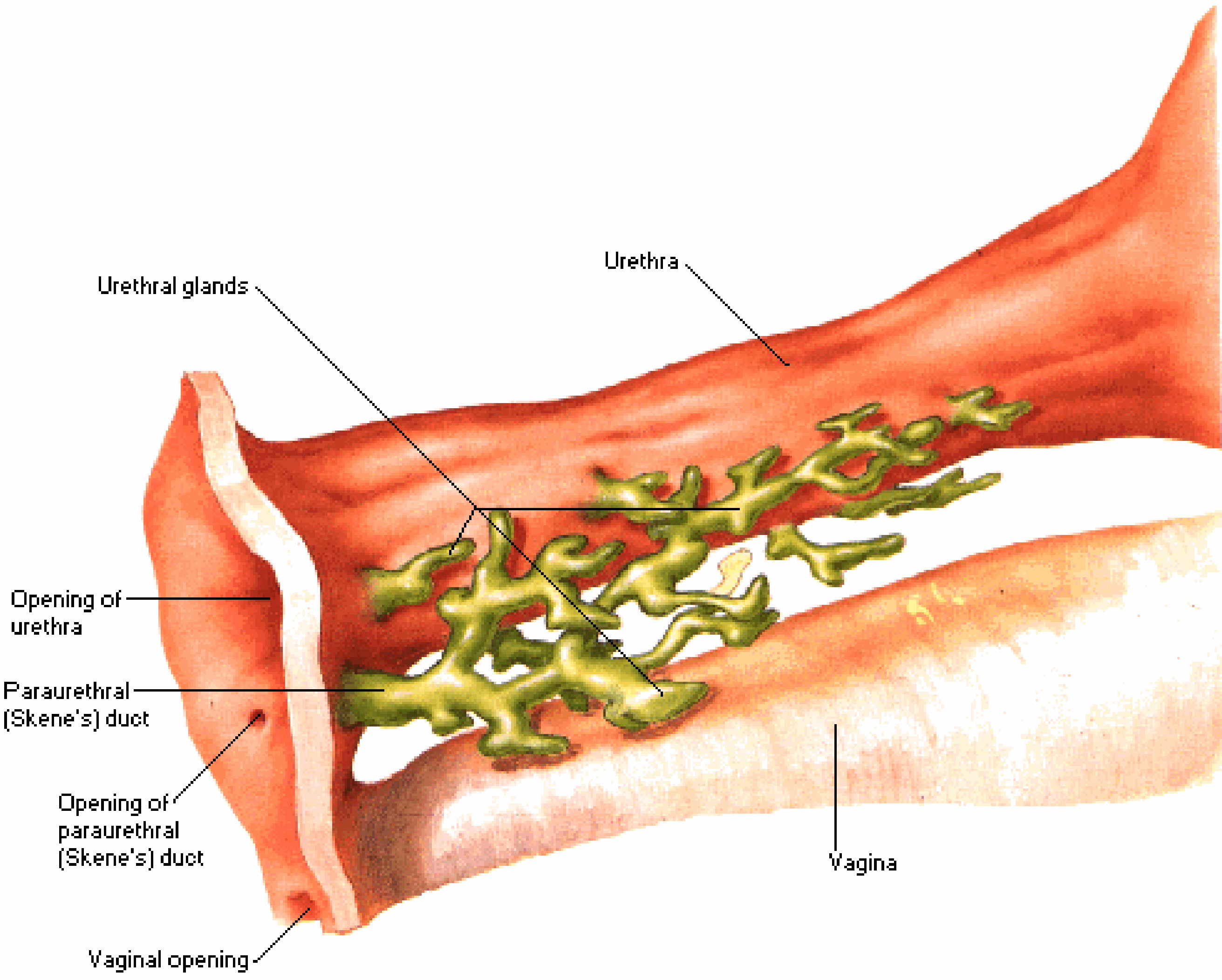
Deep Dissection



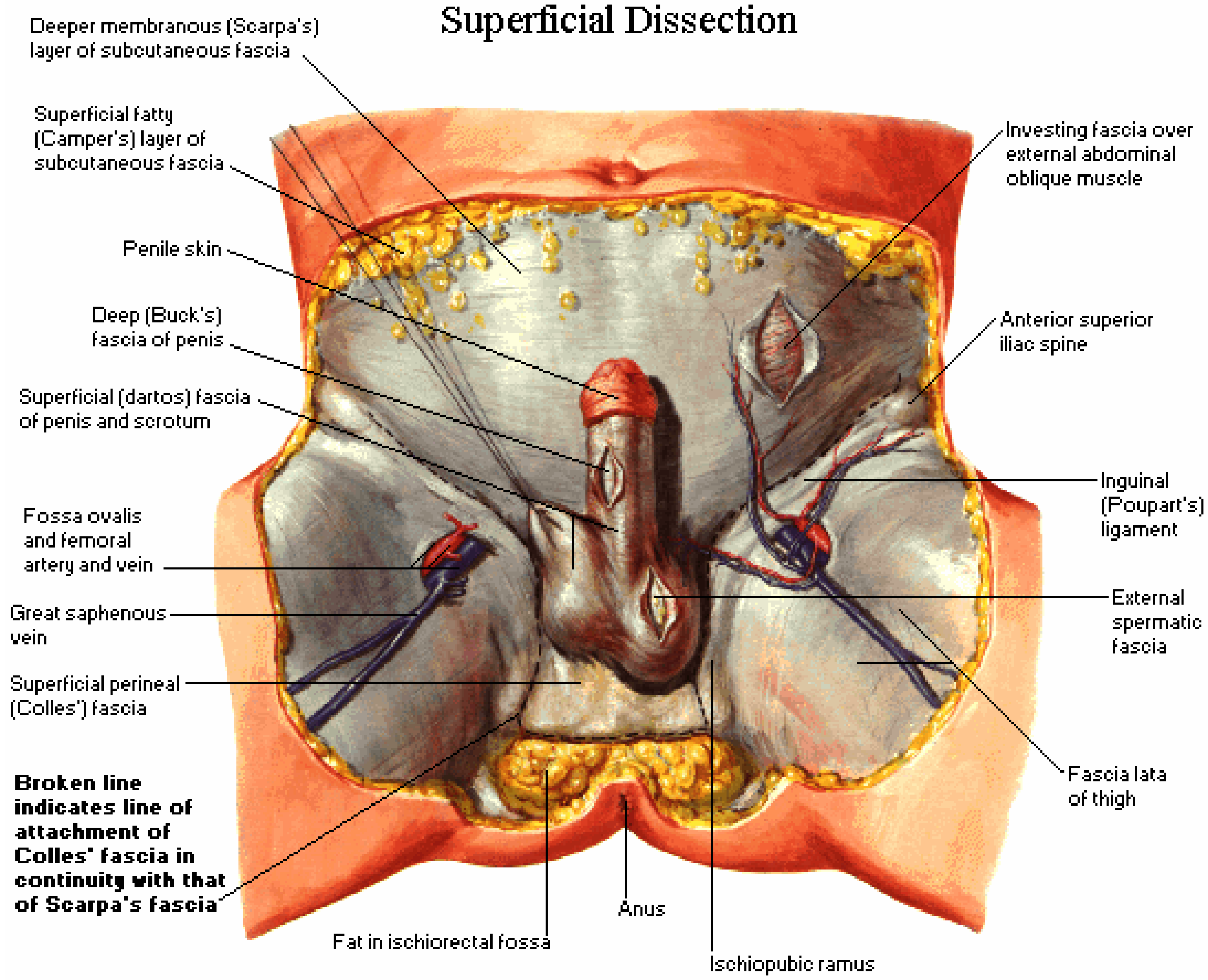
Frontal Section



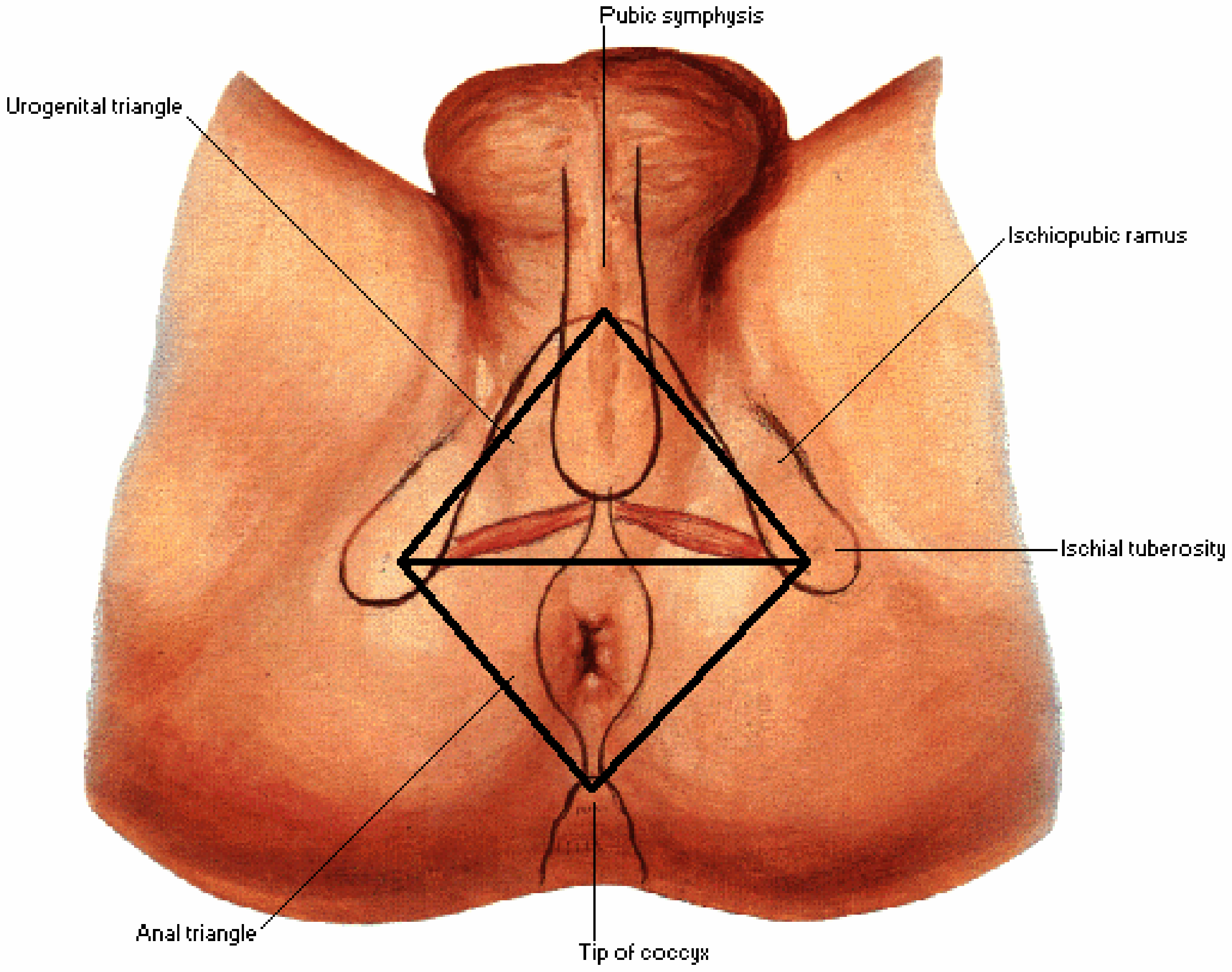
Schematic Reconstruction



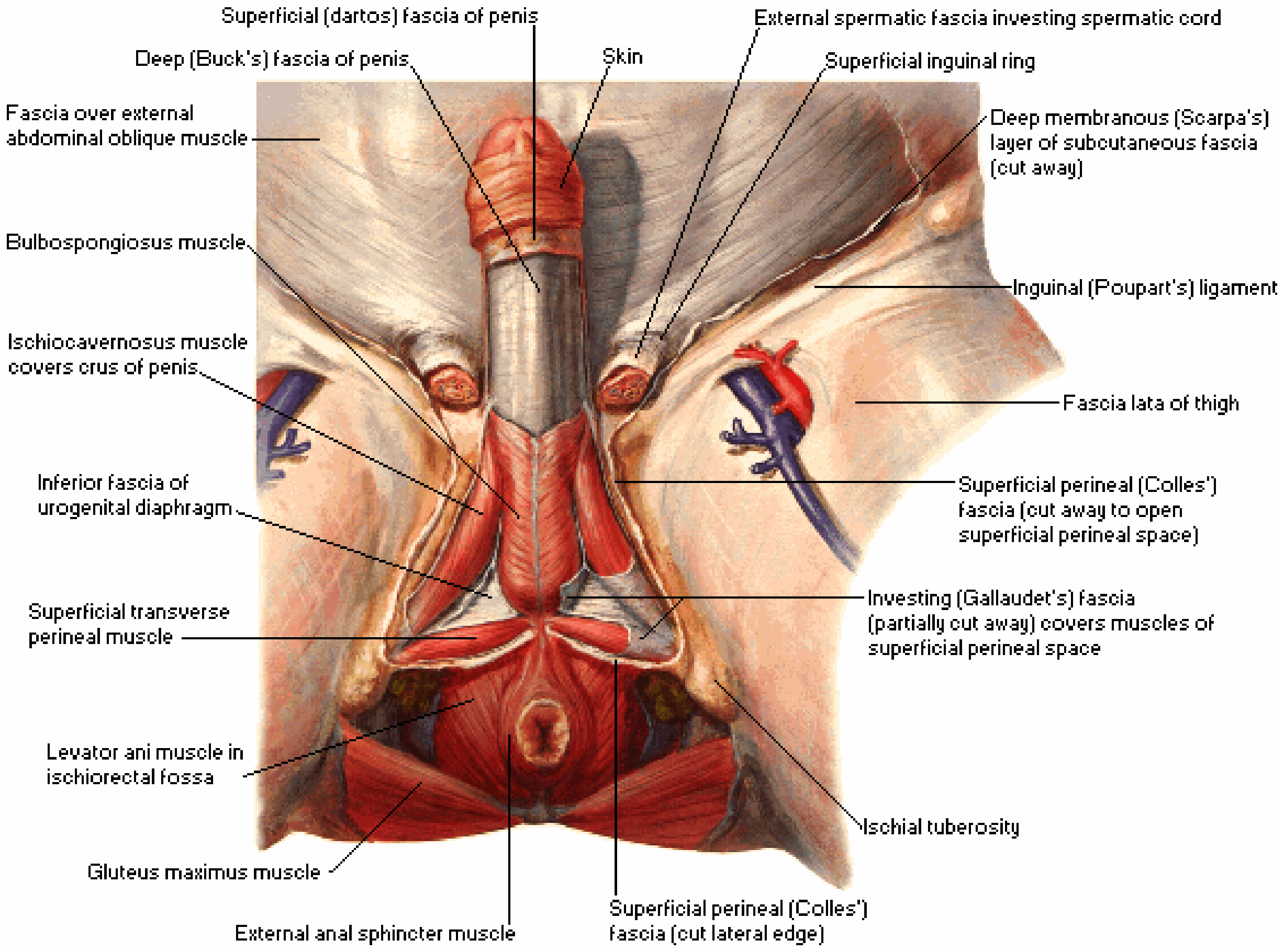
Superficial Dissection

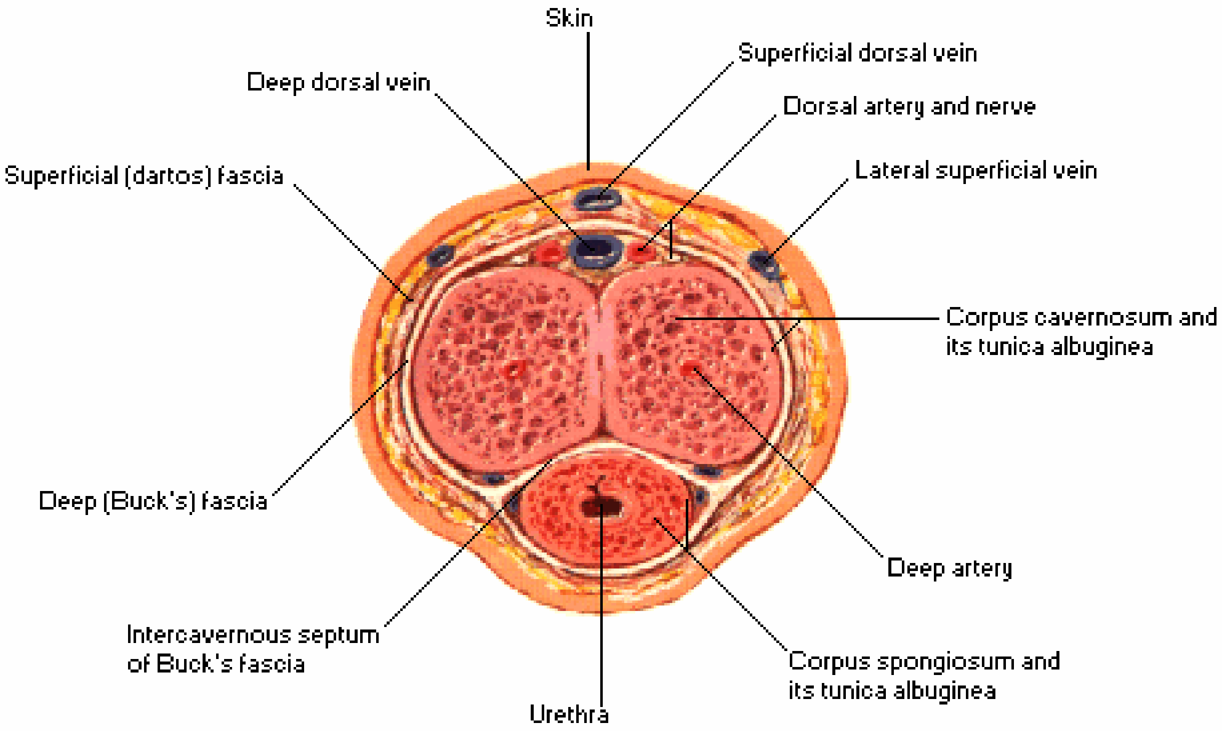


Regions [Triangles] and Surface Topography



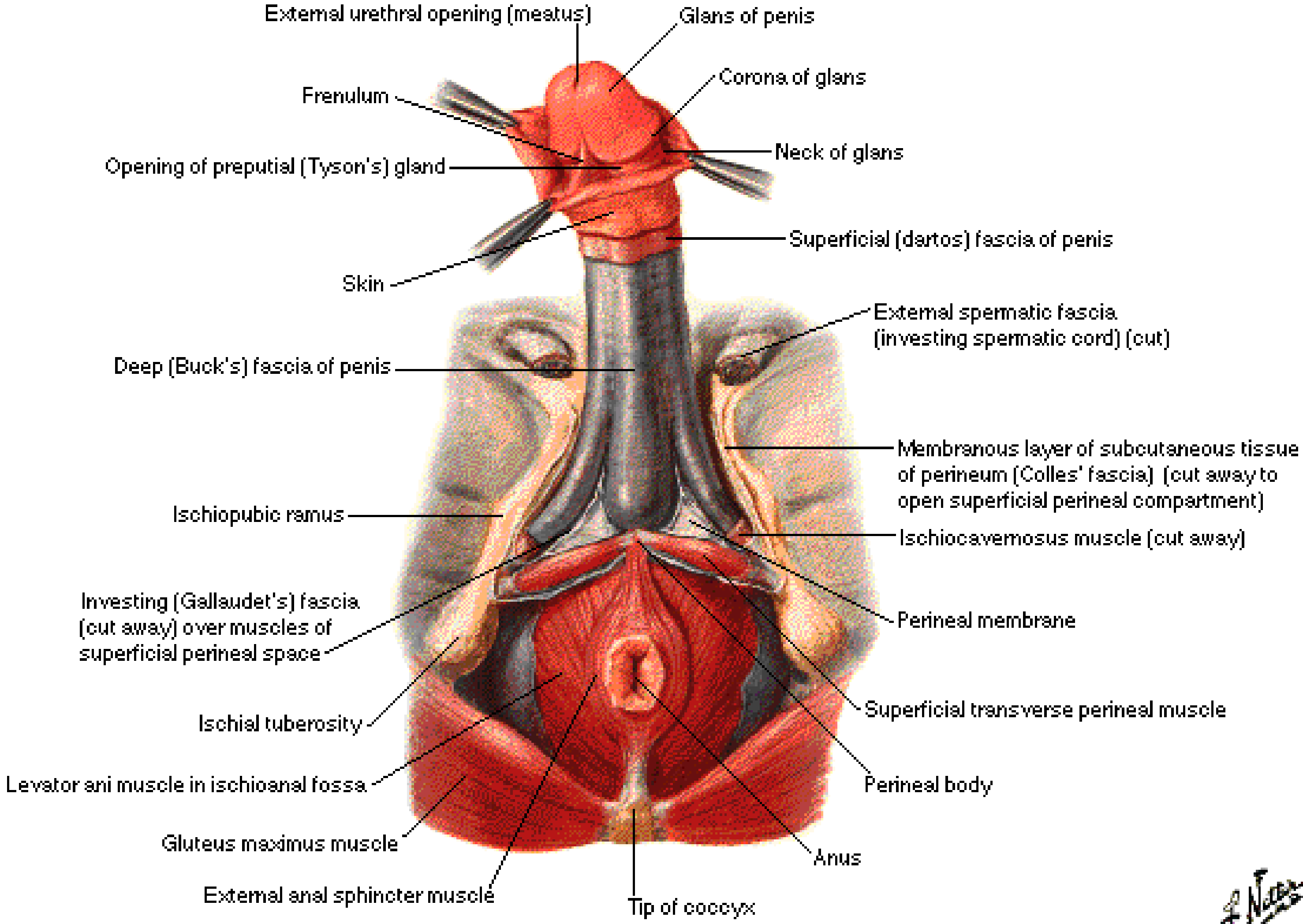
Deep Dissection



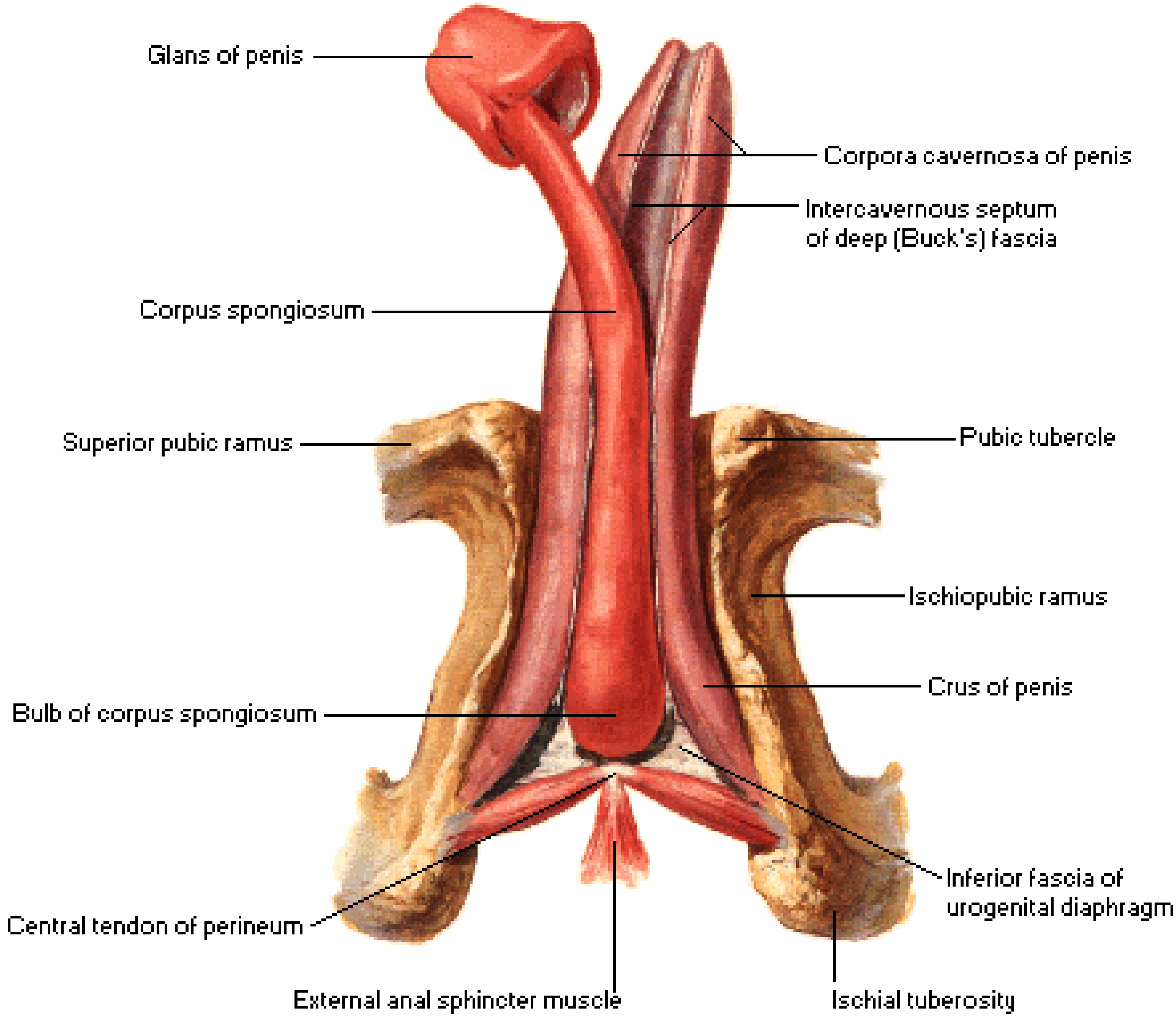


Skin
Superficial dorsal vein
Deep dorsal vein
Dorsal artery and nerve
Superficial (dartos) fascia
Lateral superficial vein
Corpus cavernosum and its tunica albuginea
Deep (Buck's) fascia
Deep artery
Intercavernous septum of Buck's fascia
Corpus spongiosum and its tunica albuginea
Urethra

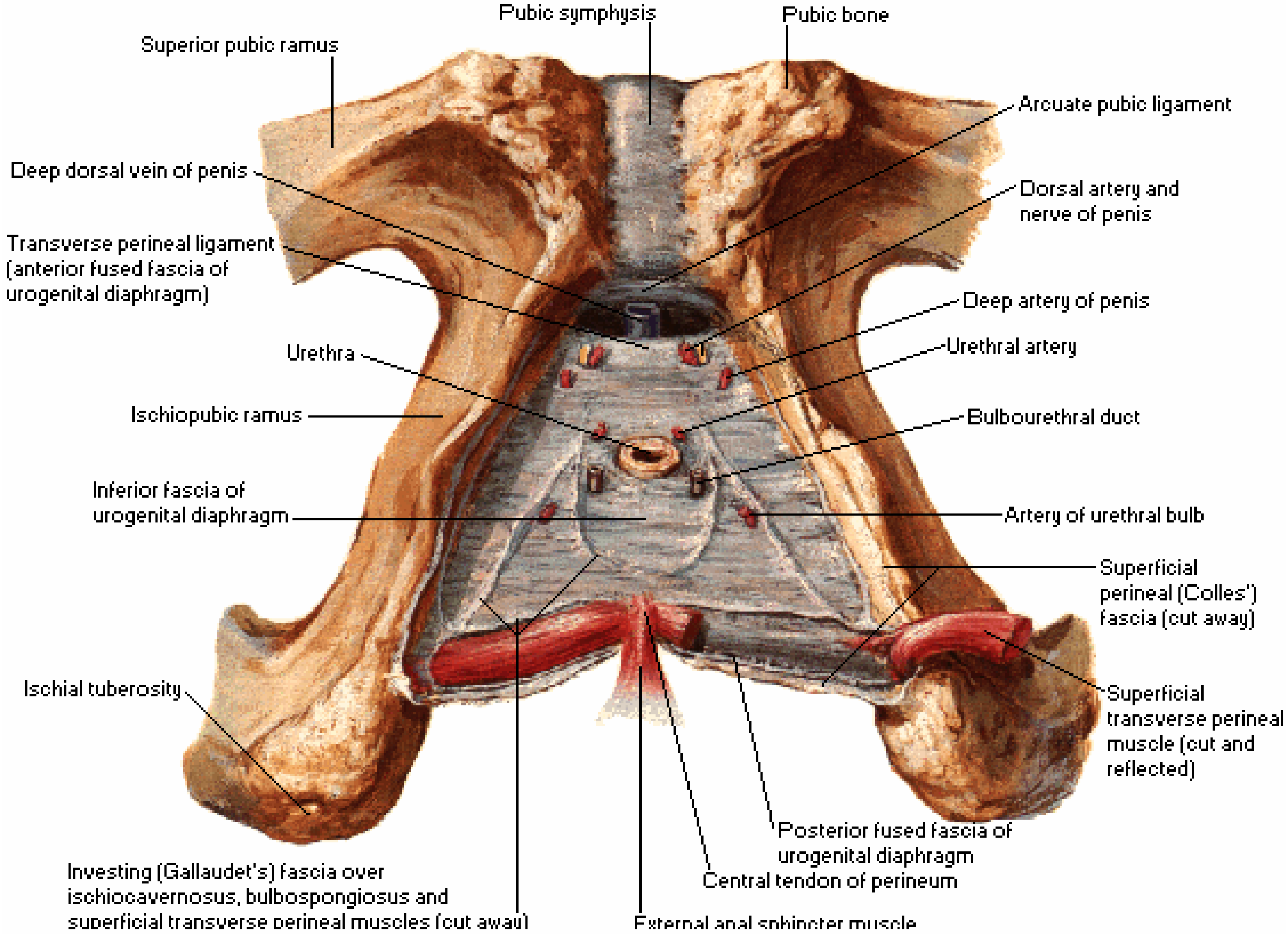
Penis



External urethral opening (meatus)
Glans of penis
Corona of glans
Frenulum
Neck of glans
Opening of preputial (Tyson's) gland
Superficial (dartos) fascia of penis
Skin
External spermatic fascia (investing spermatic cord) (cut)
Deep (Buck's) fascia of penis
Membranous layer of subcutaneous tissue of perineum (Colles' fascia) (cut away to open superficial perineal compartment)
Ischiopubic ramus
Ischiocavernosus muscle (cut away)
Investing (Gallaudet's) fascia (cut away) over muscles of superficial perineal space
Perineal membrane
Ischial tuberosity
Superficial transverse perineal muscle
Levator ani muscle in ischioanal fossa
Perineal body
Gluteus maximus muscle
Anus
External anal sphincter muscle
Tip of coccyx

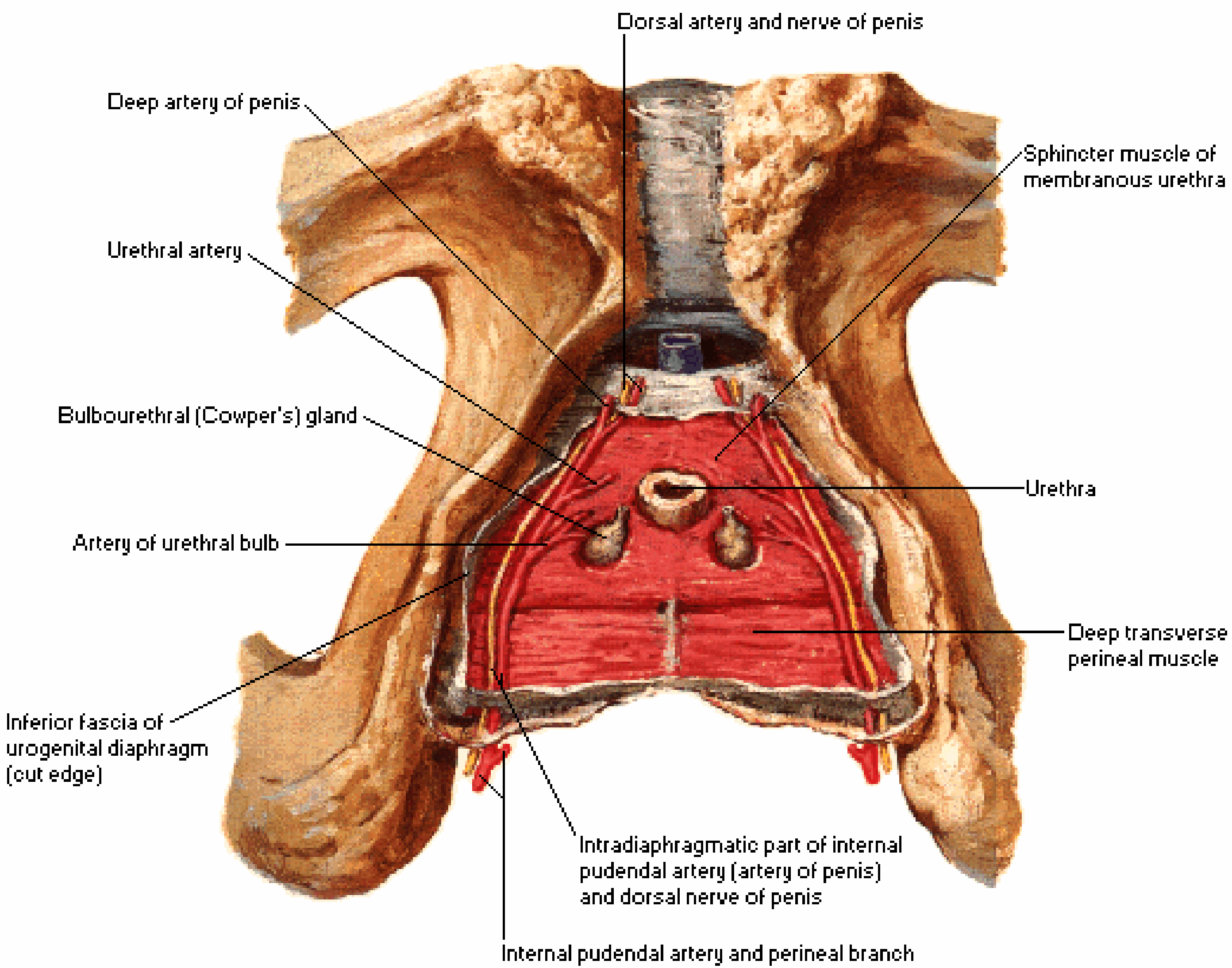

Glans of penis
Corpora cavernosa of penis
Intercavernous septum
of deep (Buck's) fascia
Corpus spongiosum
Superior pubic ramus
Pubic tubercle
Ischiopubic ramus
Crus of penis
Bulb of corpus spongiosum
Inferior fascia of
urogenital diaphragm
Central tendon of perineum
External anal sphincter muscle
Ischial tuberosity

Dissection

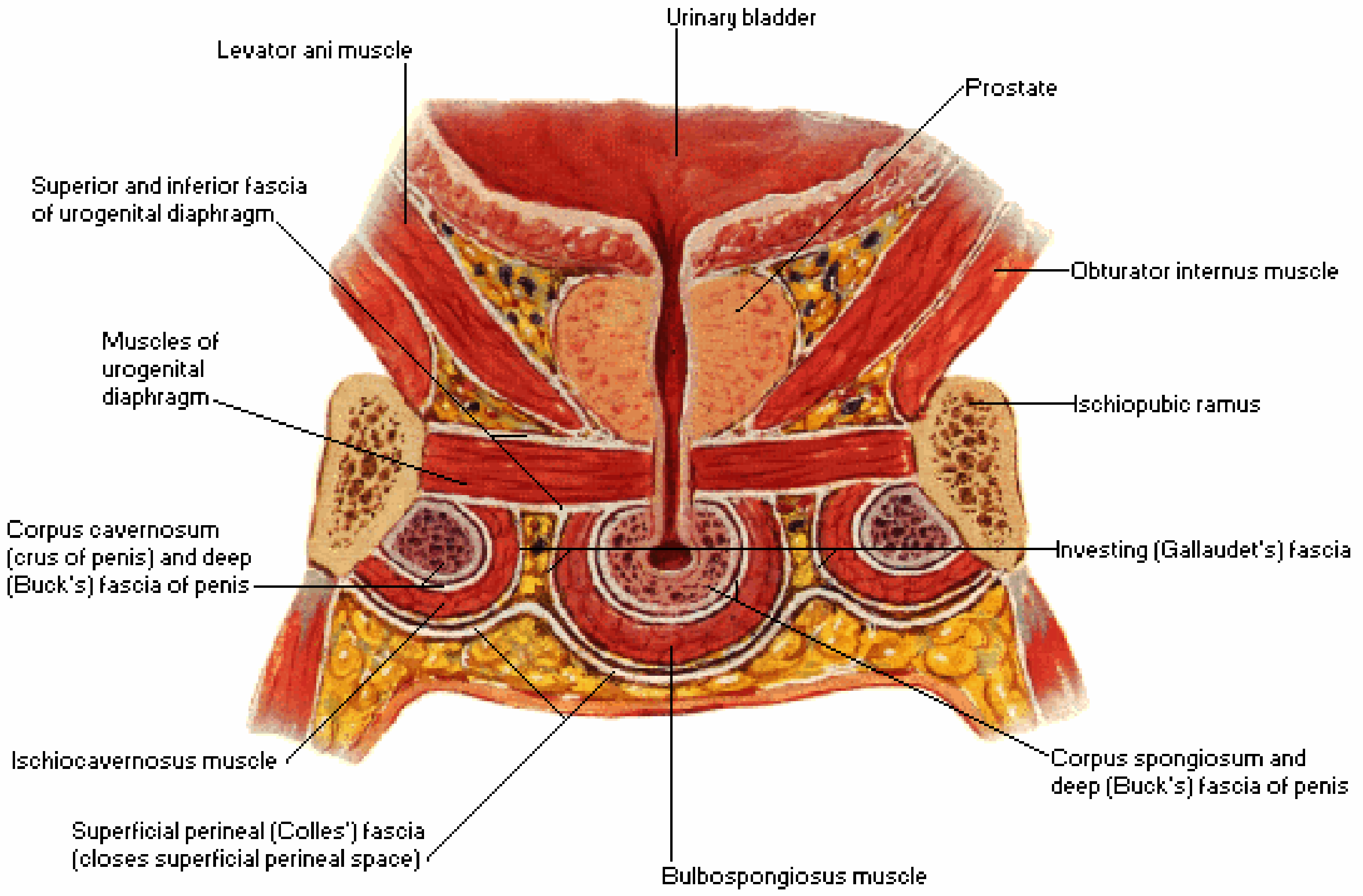


Pubic symphysis
Pubic bone
Superior pubic ramus
Arcuate pubic ligament
Deep dorsal vein of penis
Dorsal artery and nerve of penis
Transverse perineal ligament (anterior fused fascia of urogenital diaphragm)
Deep artery of penis
Urethral artery
Urethra
Ischiopubic ramus
Bulbourethral duct
Inferior fascia of urogenital diaphragm
Artery of urethral bulb
Superficial perineal (Colles') fascia (cut away)
Ischial tuberosity
Superficial transverse perineal muscle (cut and reflected)
Posterior fused fascia of urogenital diaphragm
Central tendon of perineum
Investing (Gallaudet's) fascia over ischiocavernosus, bulbospongiosus and superficial transverse perineal muscles (cut away)
External anal sphincter muscle

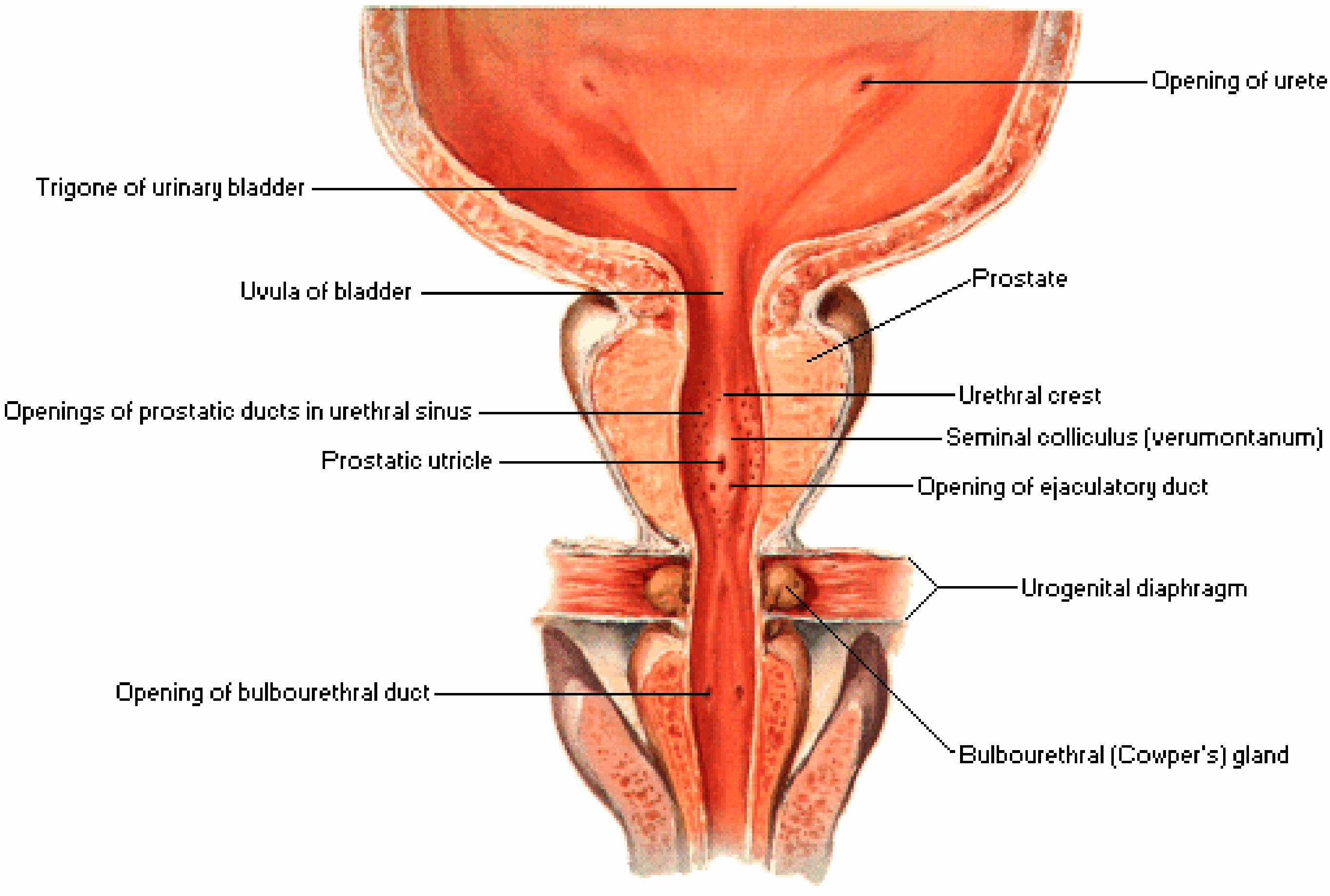
Deep Dissection



Frontal Section - Schema

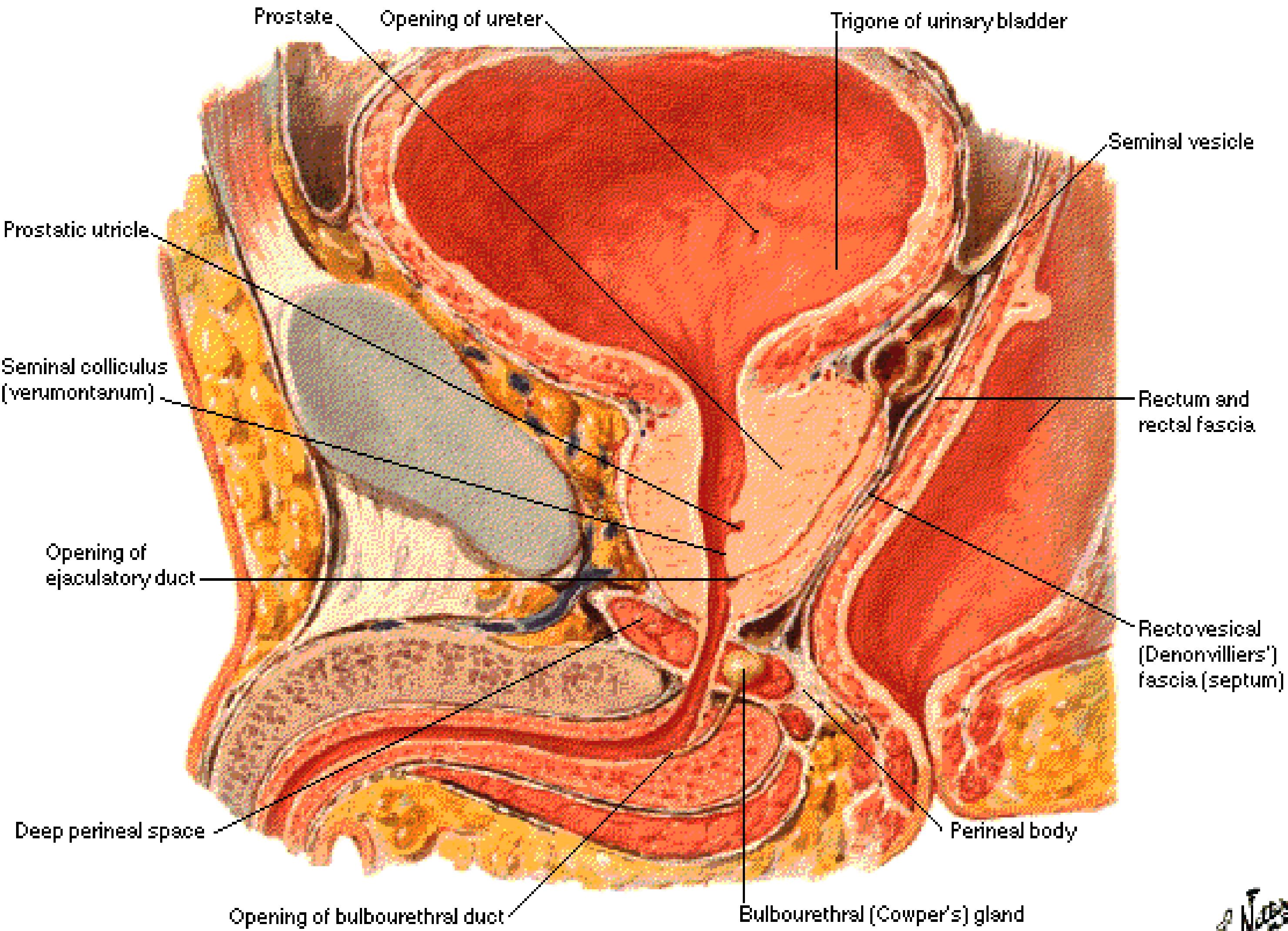


Frontal Section

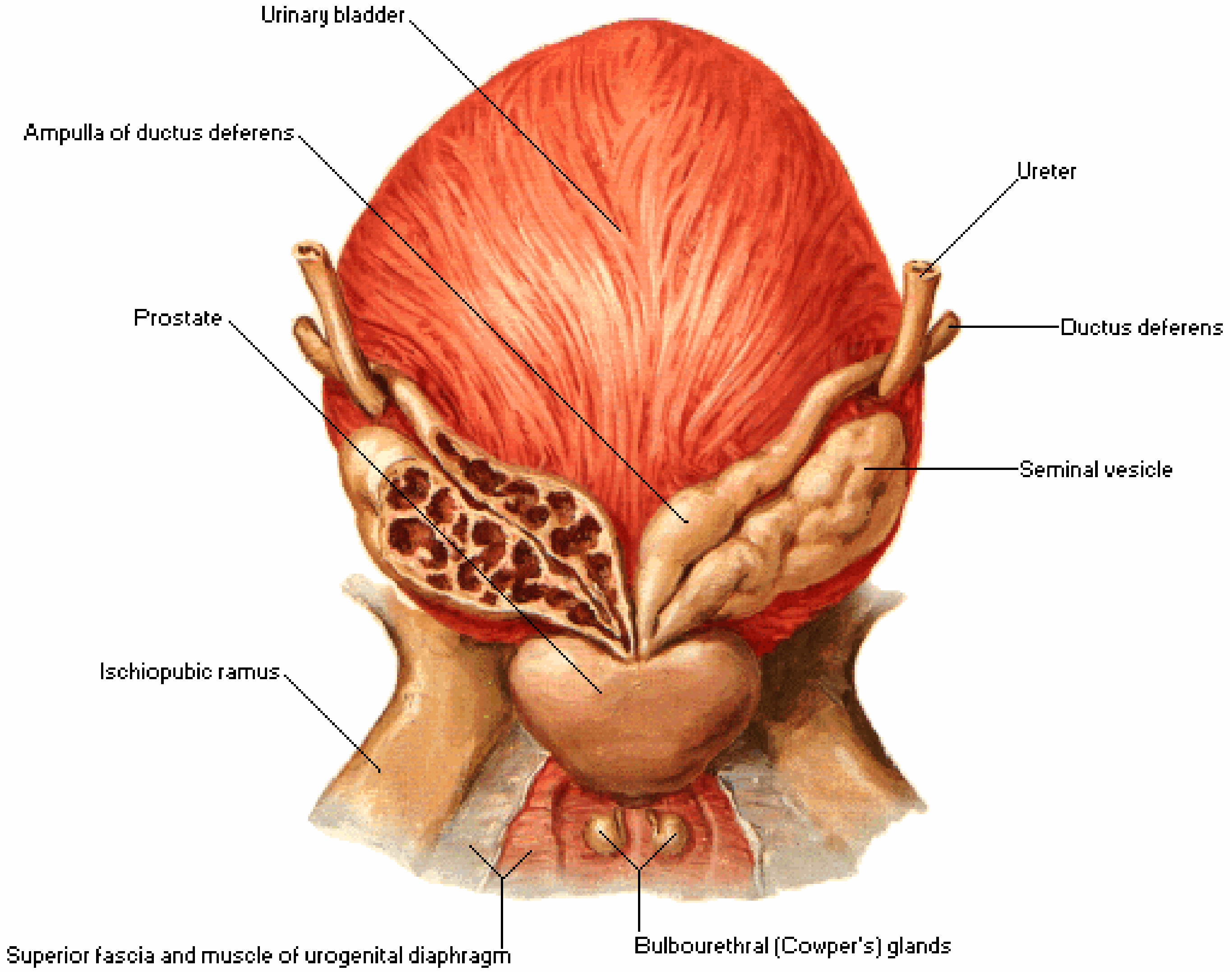


Urethral bulb schematically extended

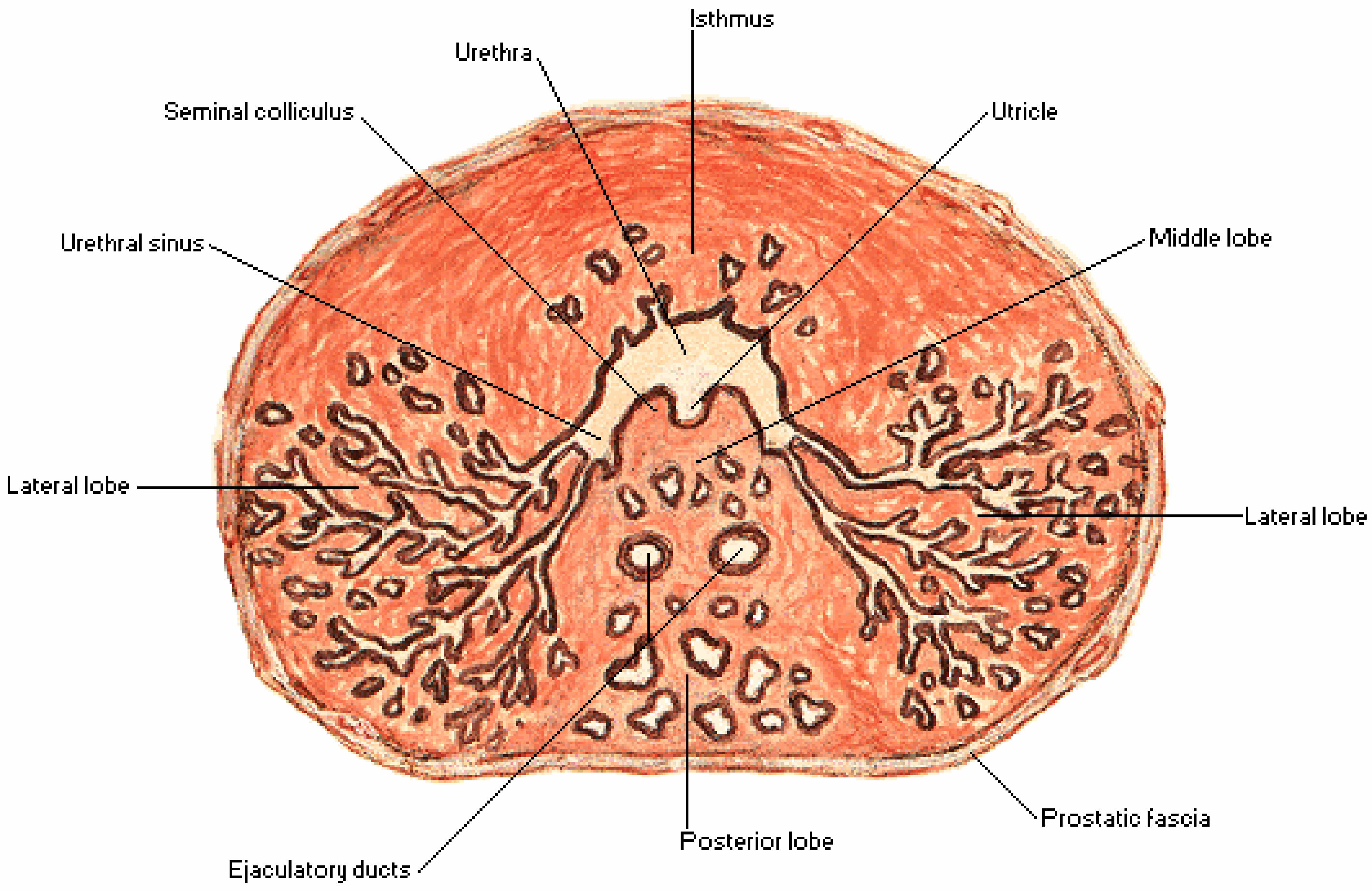
Prostate and Seminal Vesicles
Sagittal Section



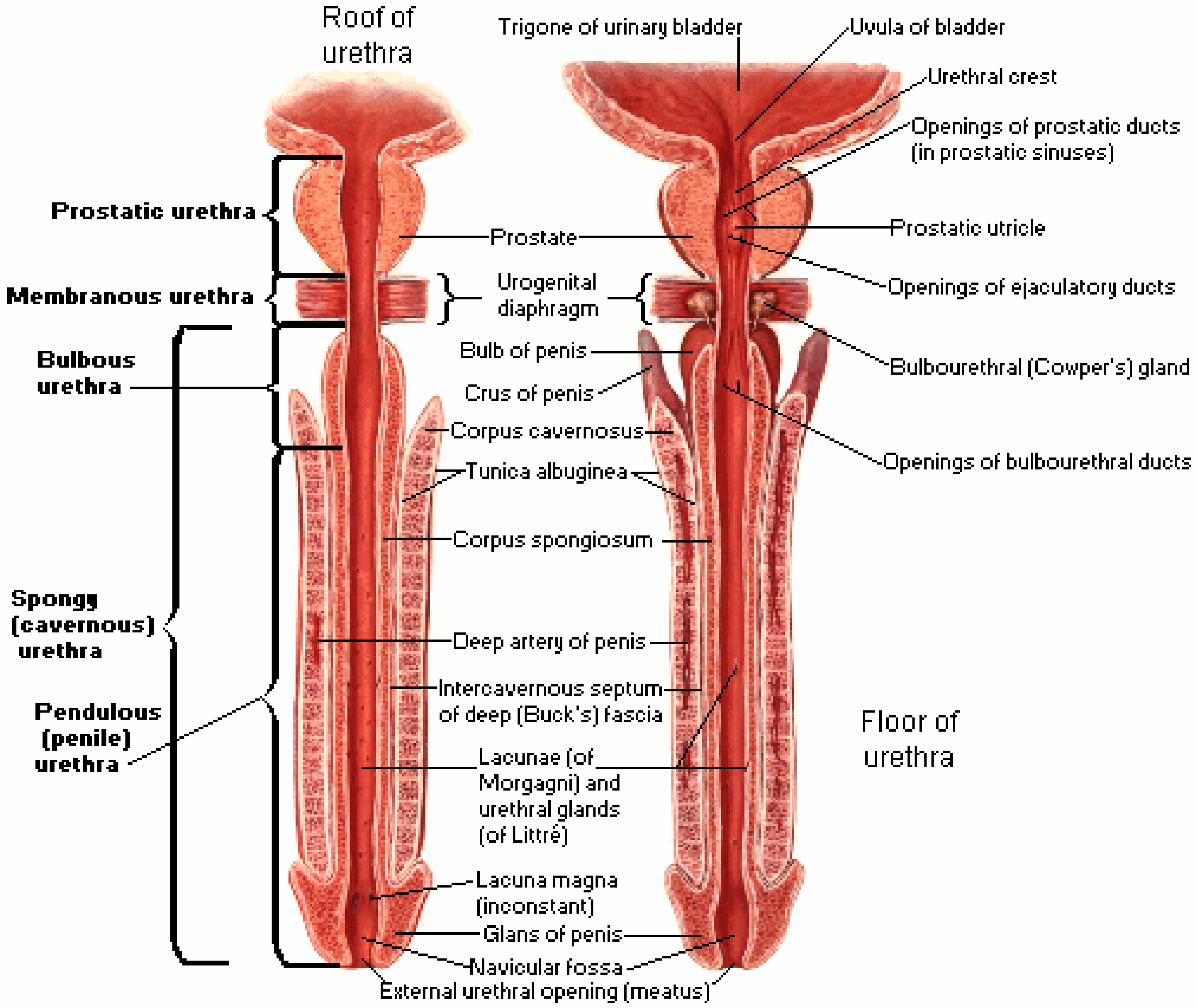
Posterior View



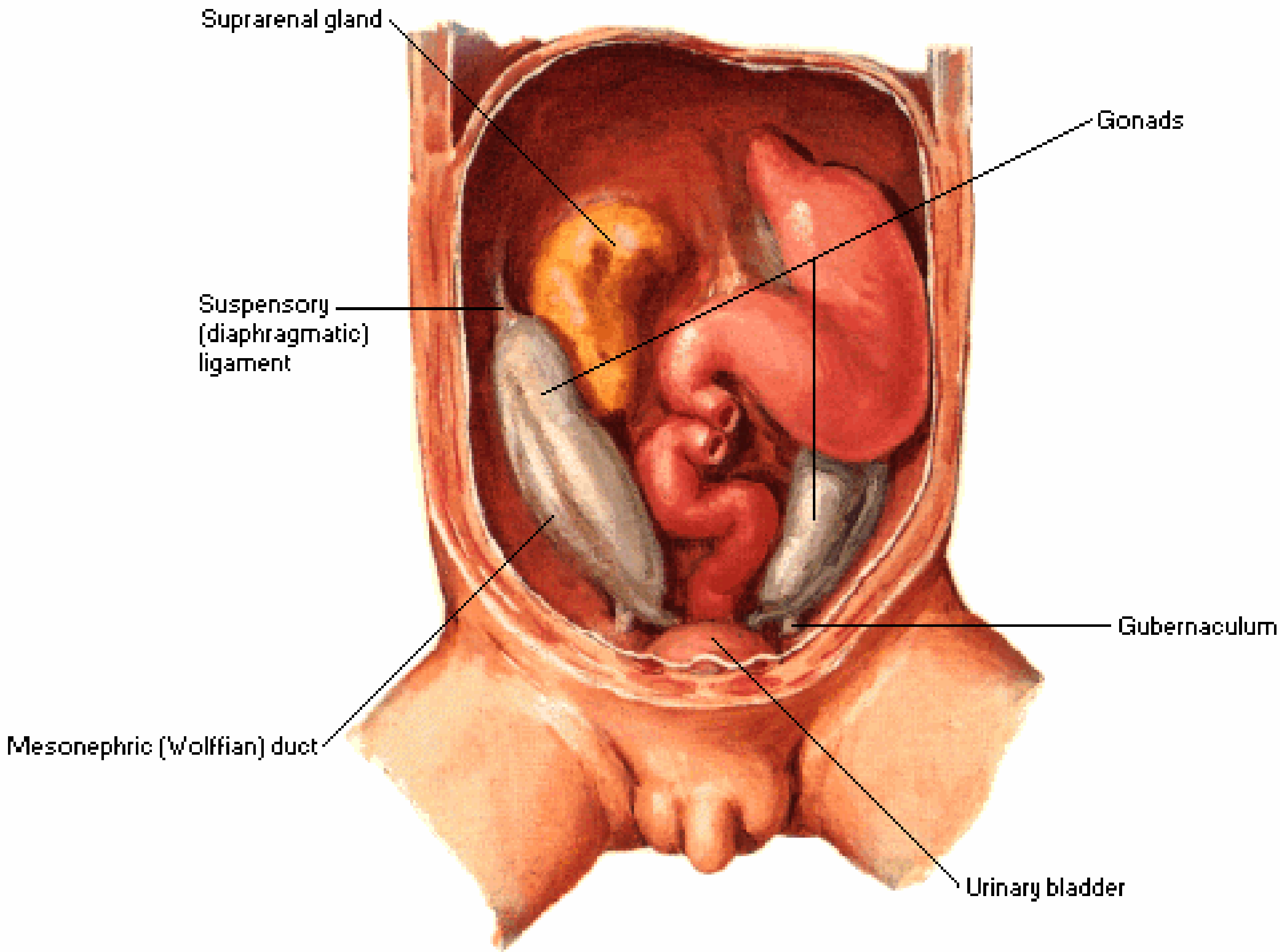
Cross Section through Prostate



Male

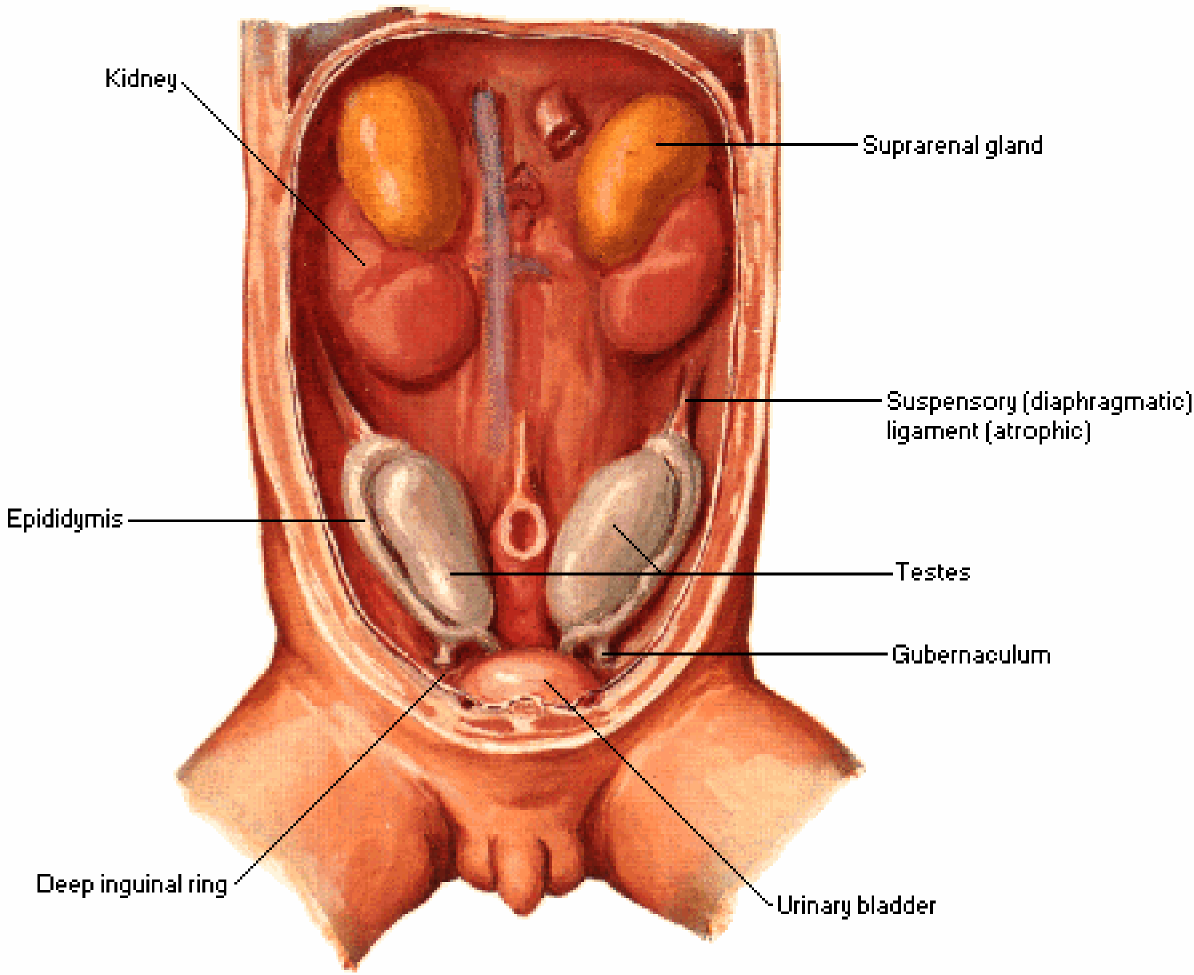

Roof of urethra
Trigone of urinary bladder
Uvula of bladder
Urethral crest
Openings of prostatic ducts (in prostatic sinuses)
Prostatic urethra
Prostate
Prostatic utricle
Membranous urethra
Urogenital diaphragm
Openings of ejaculatory ducts
Bulbous urethra
Bulb of penis
Bulbourethral (Cowper's) gland
Crus of penis
Corpus cavernosus
Openings of bulbourethral ducts
Tunica albuginea
Corpus spongiosum
Spongy (cavernous) urethra
Deep artery of penis
Intercavernous septum of deep (Buck's) fascia
Pendulous (penile) urethra
Floor of urethra
Lacunae (of Morgagni) and urethral glands (of Littré)
Lacuna magna (inconstant)
Glans of penis
Navicular fossa
External urethral opening (meatus)

8 Weeks



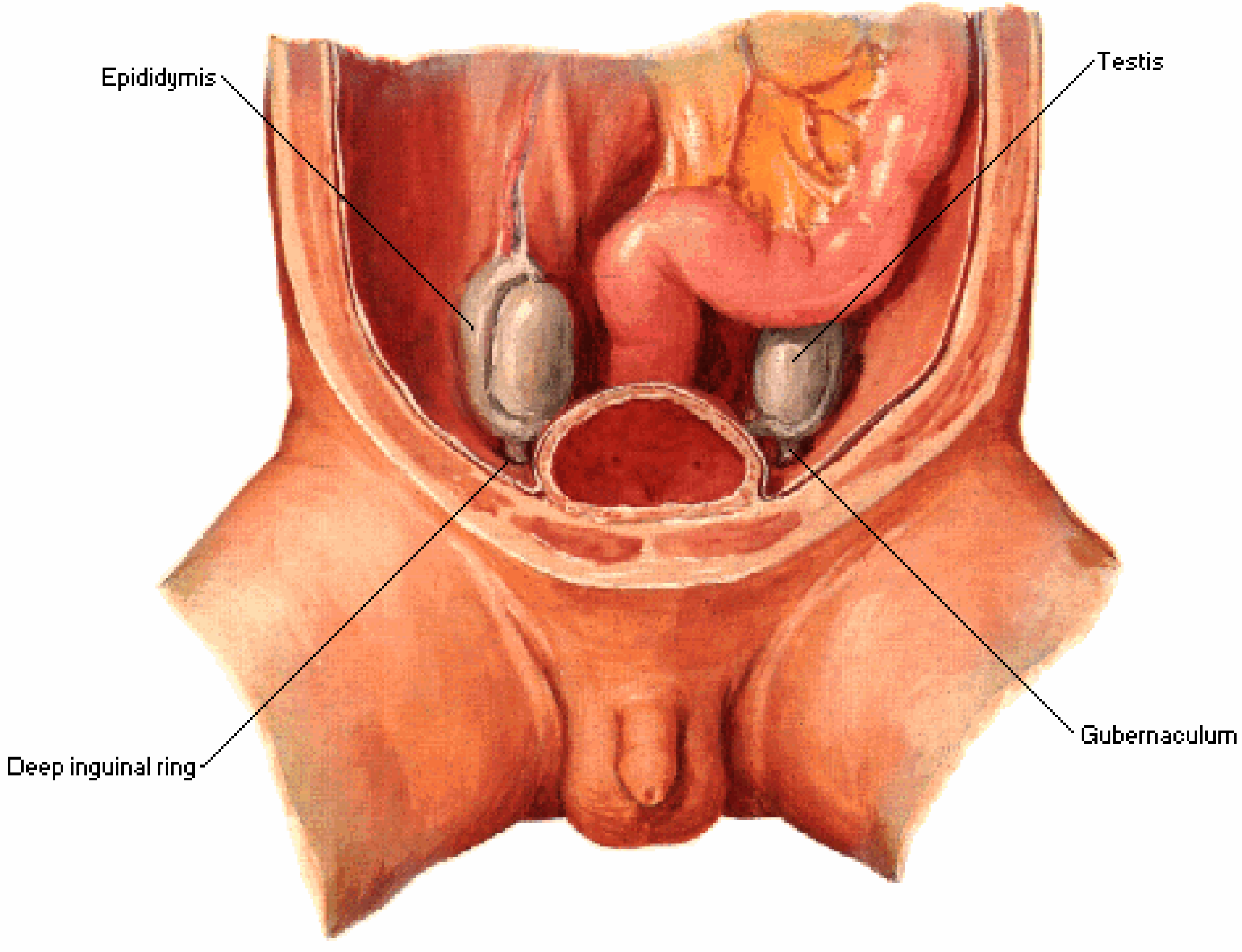
22.5-mm crown rump

11 Weeks



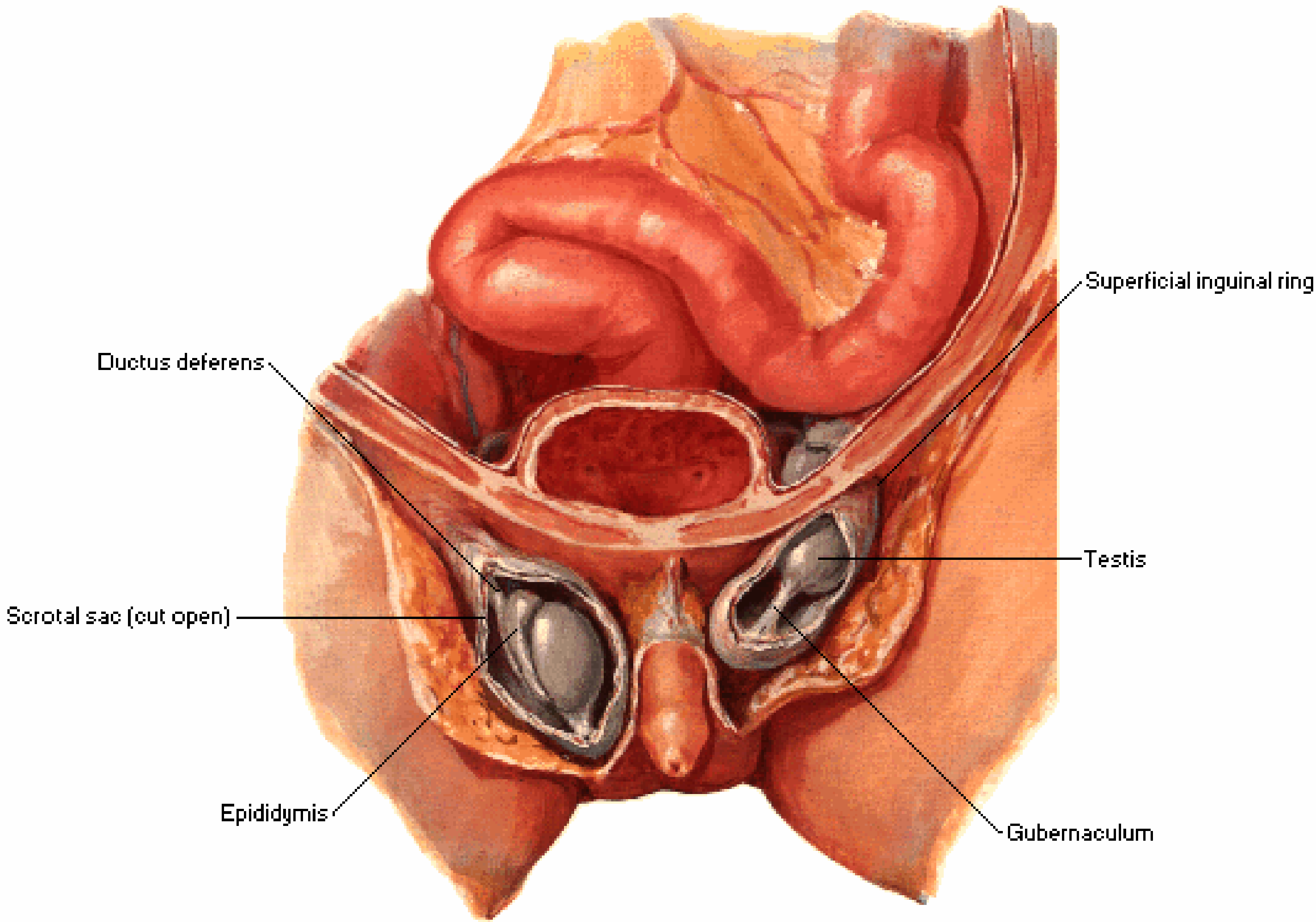
43-mm crown rump

4 Lunar Months



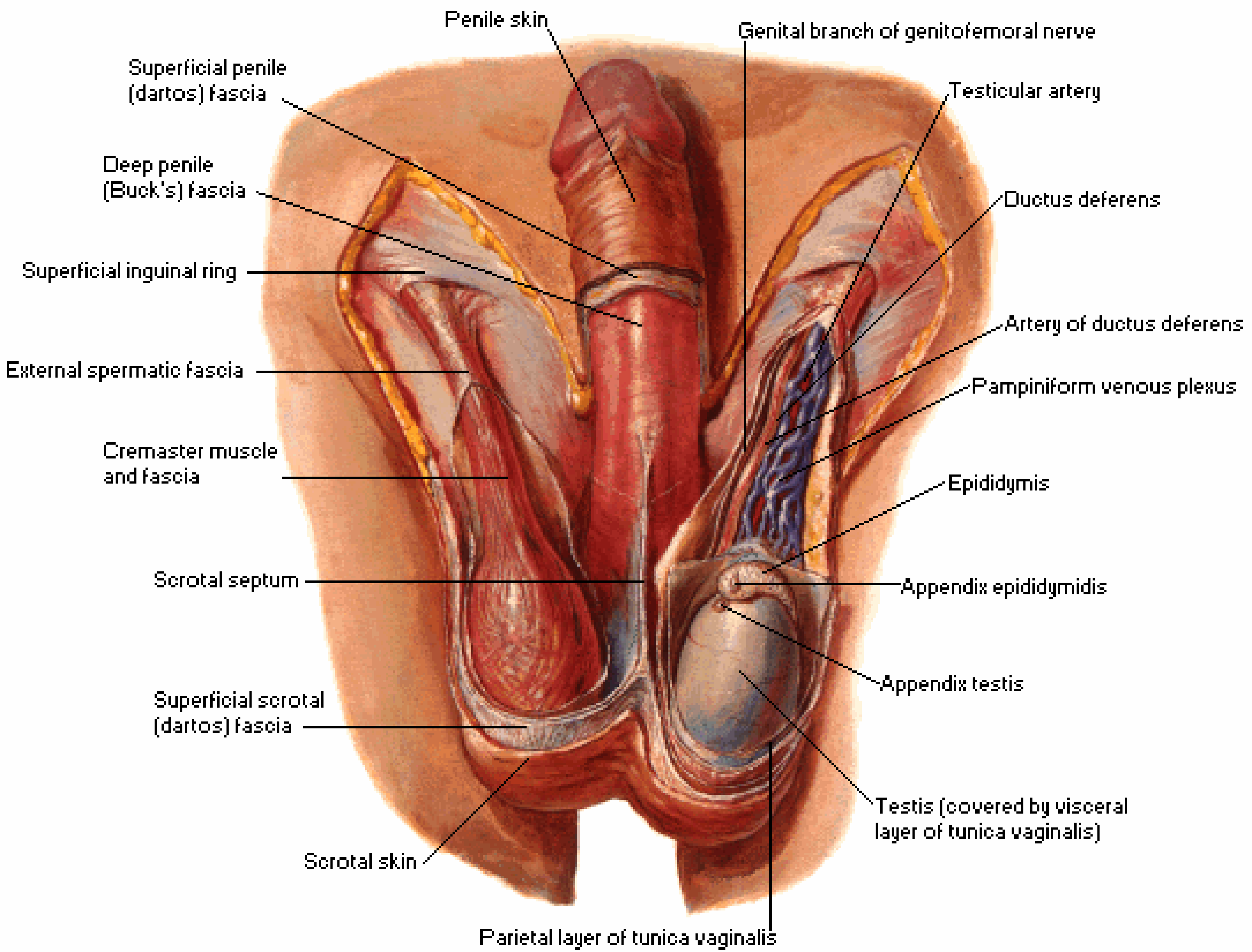
107-mm crown rump

8 Lunar Months

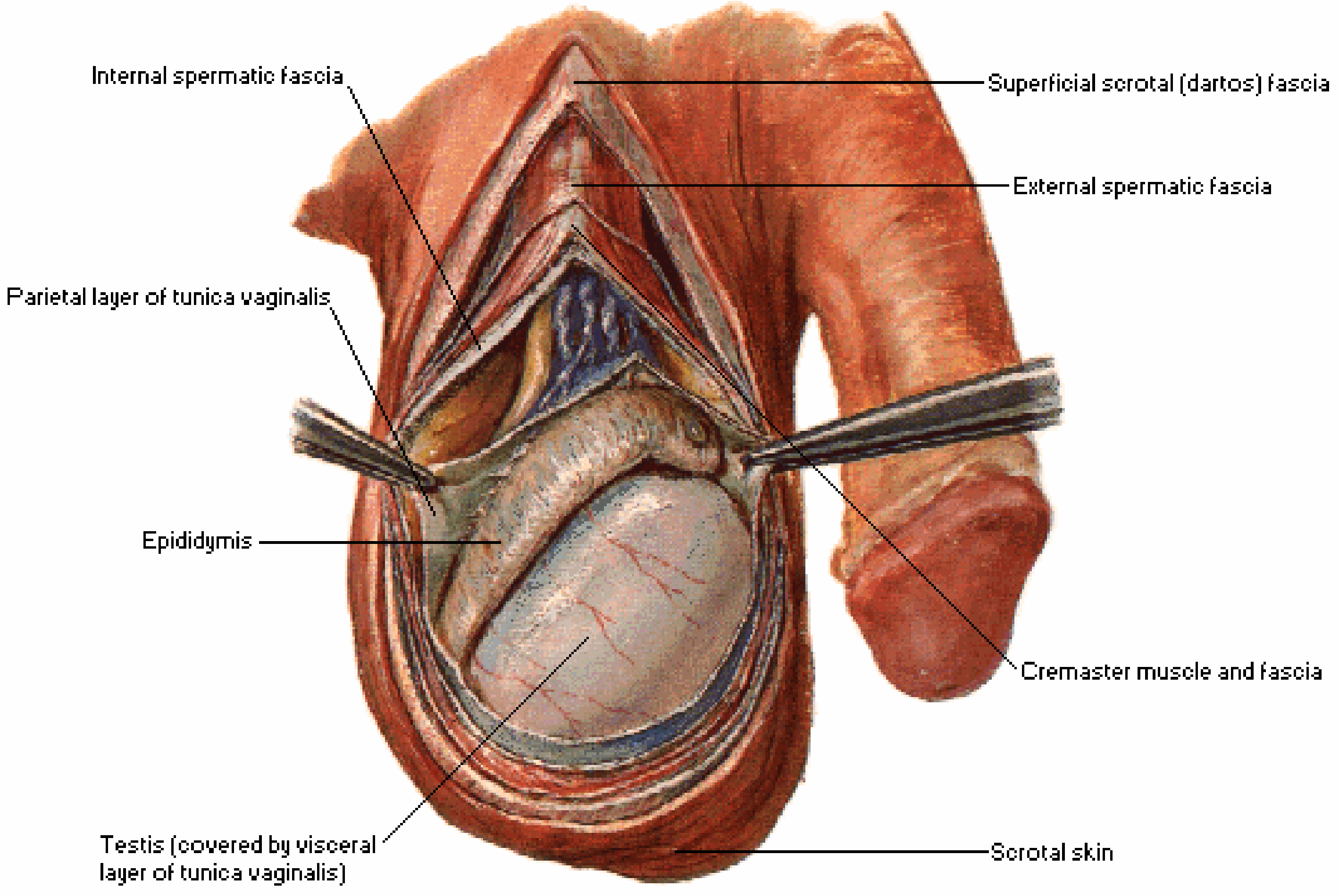


26-cm crown rump

Anterior View

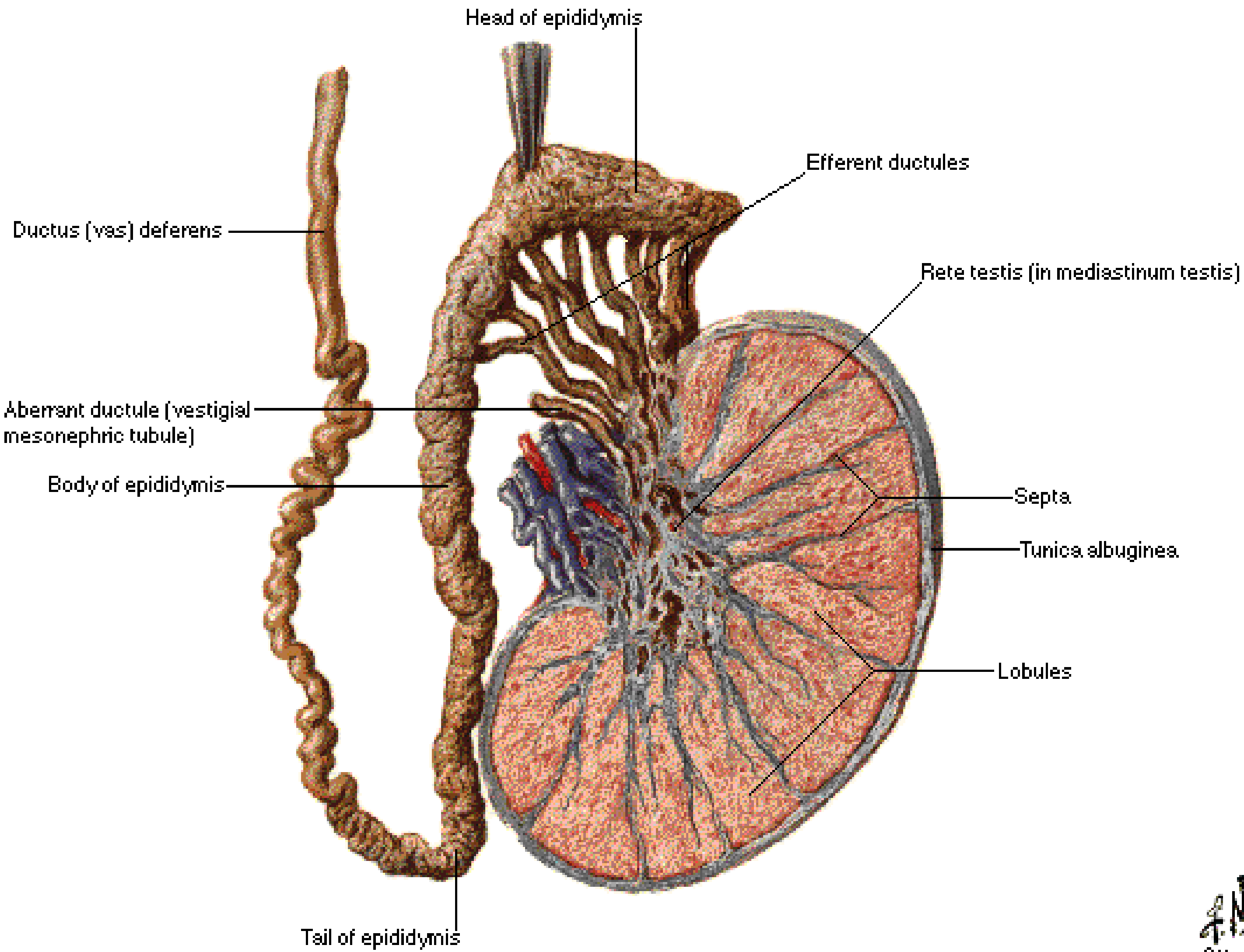


Lateral View

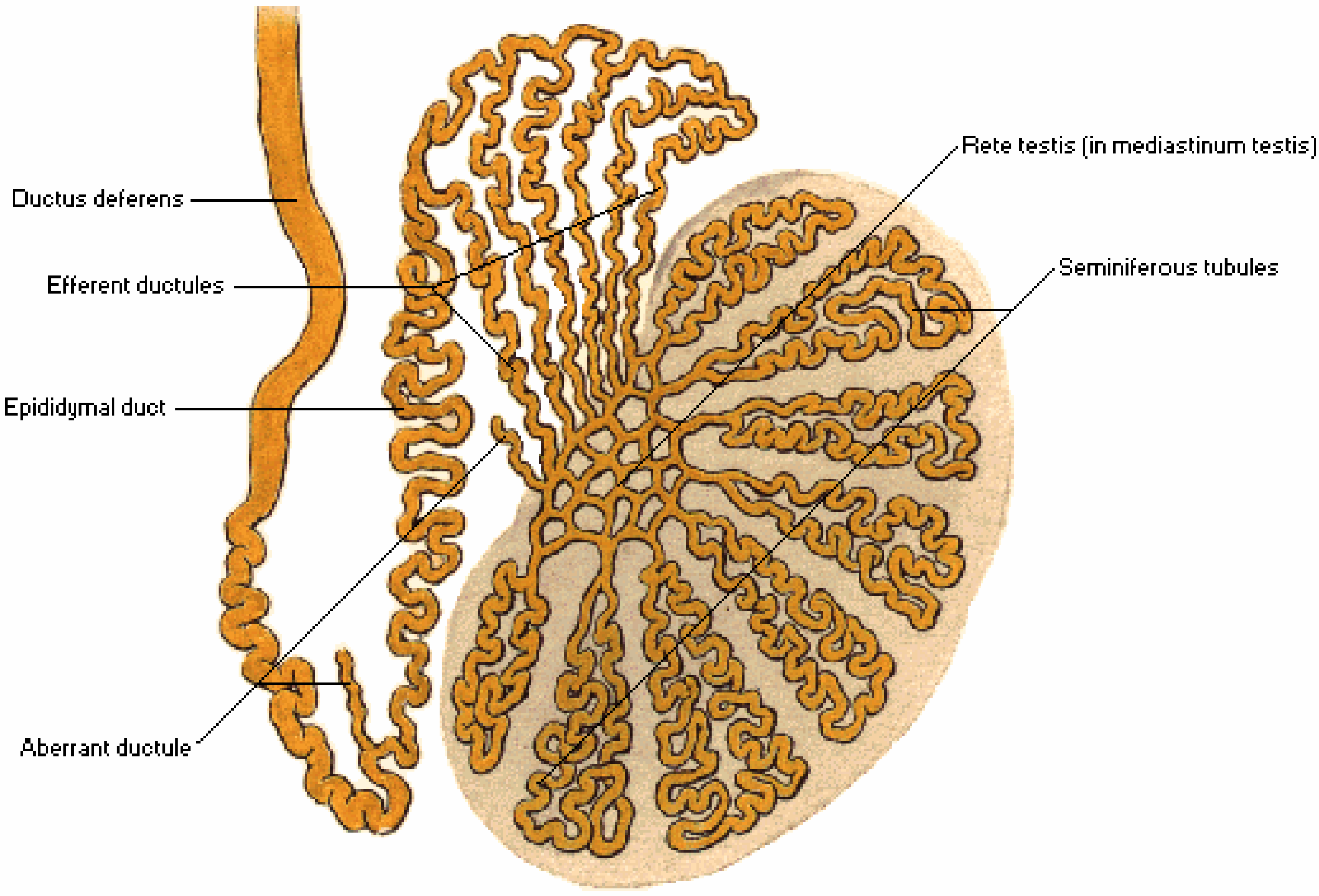


Testis, Epididymis and Ductus Deferens

Frontal Section

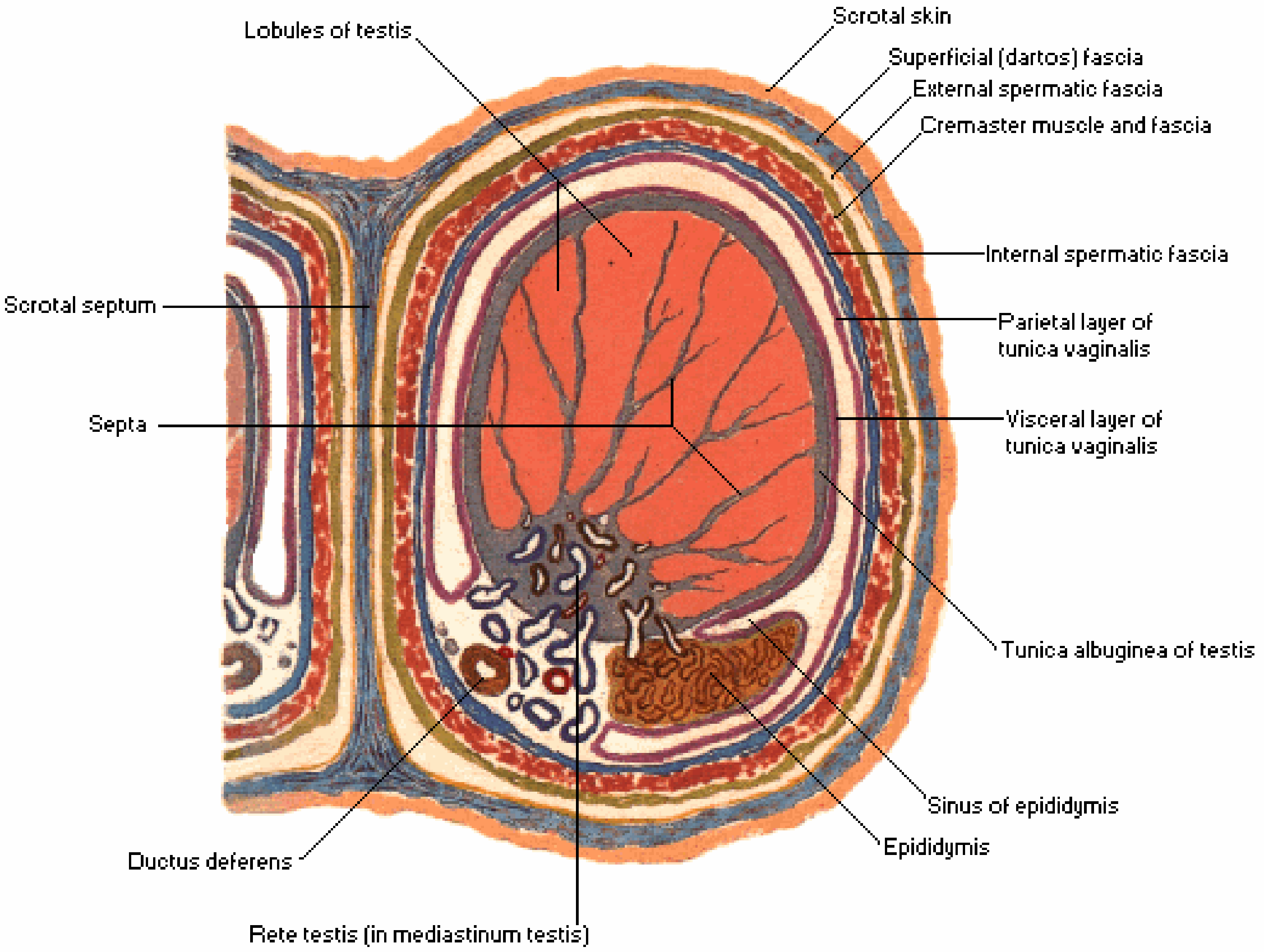


Schema

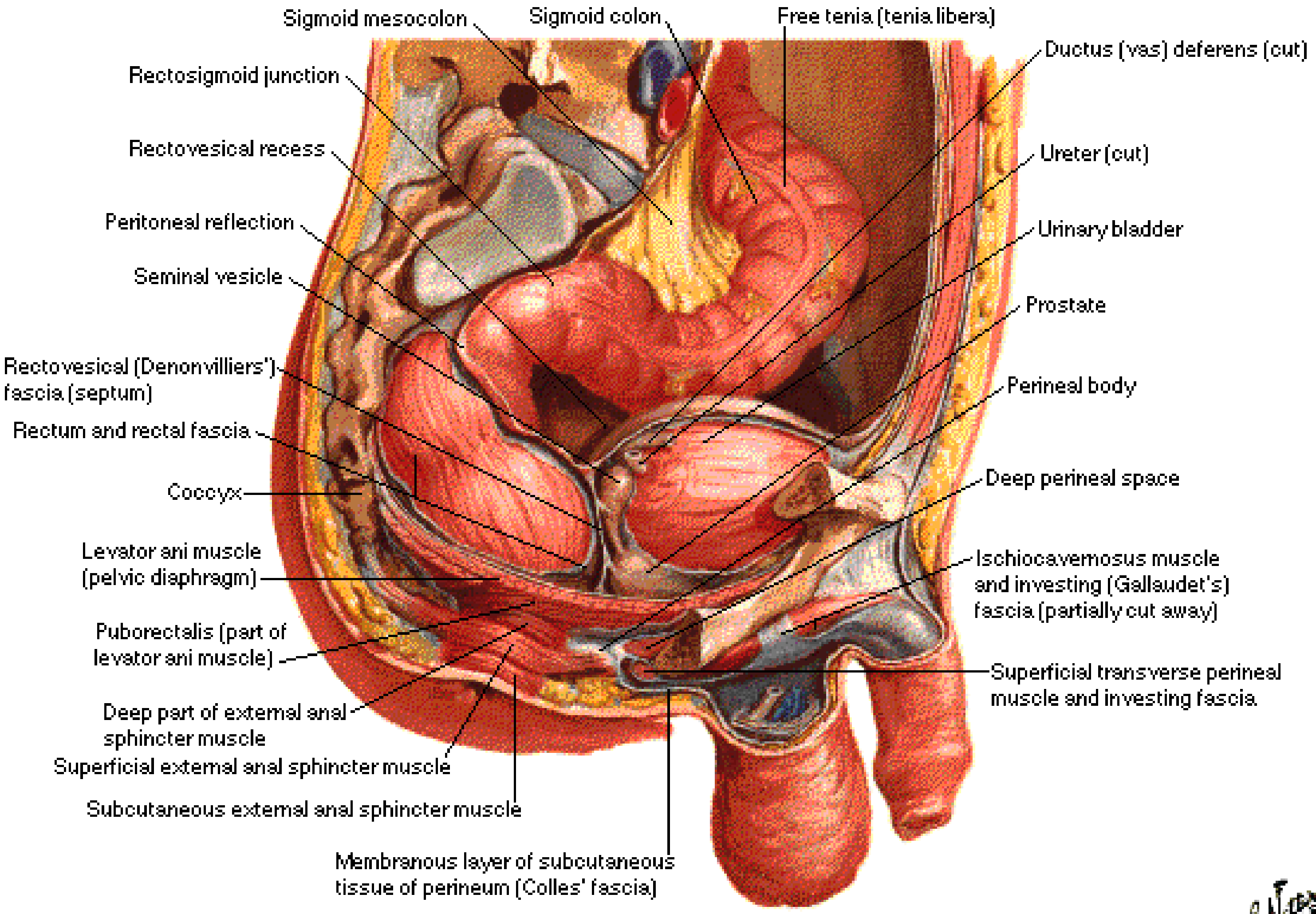


Ductus deferens
Efferent ductules
Epididymal duct
Aberrant ductule
Rete testis (in mediastinum testis)
Seminiferous tubules

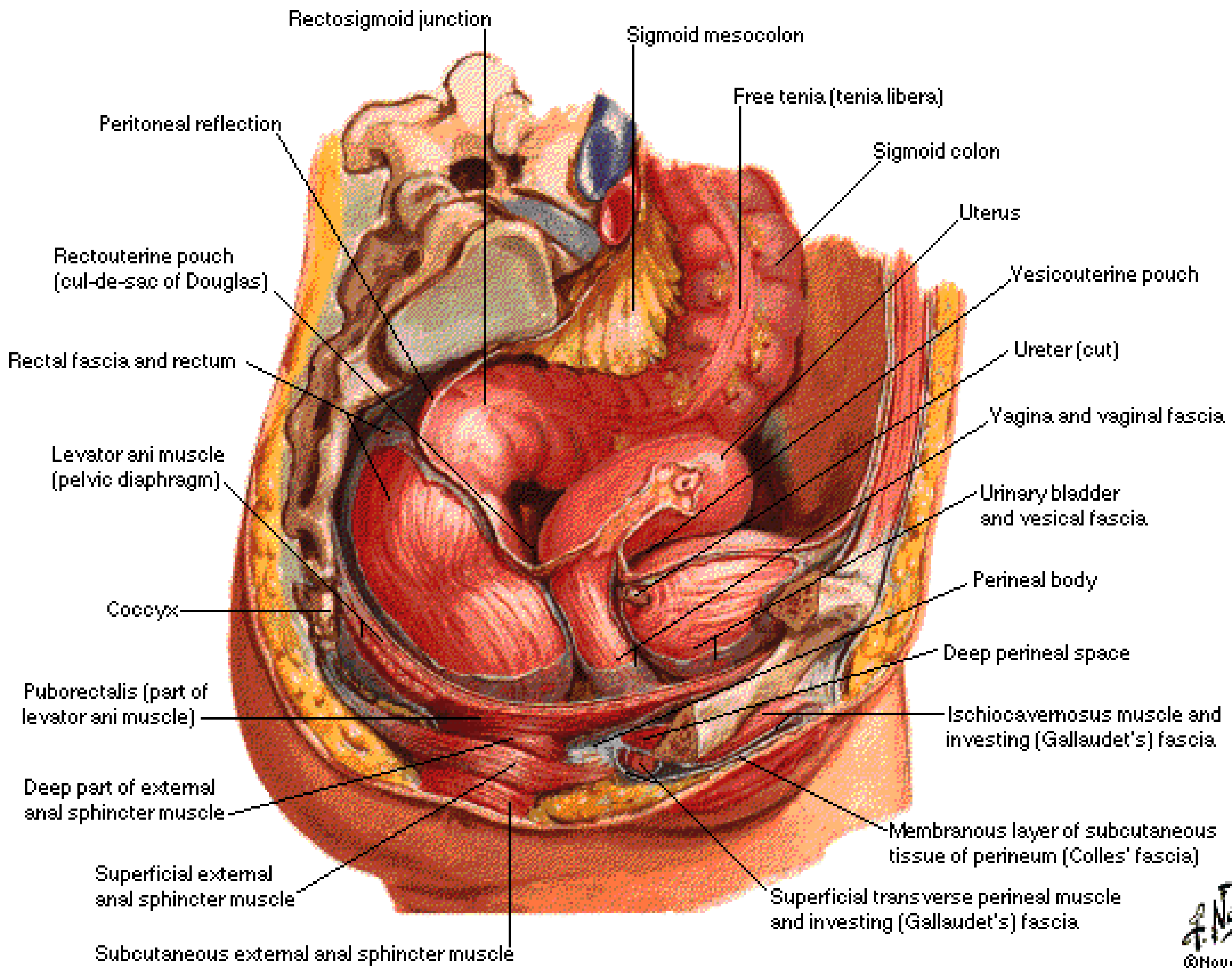
Cross Section

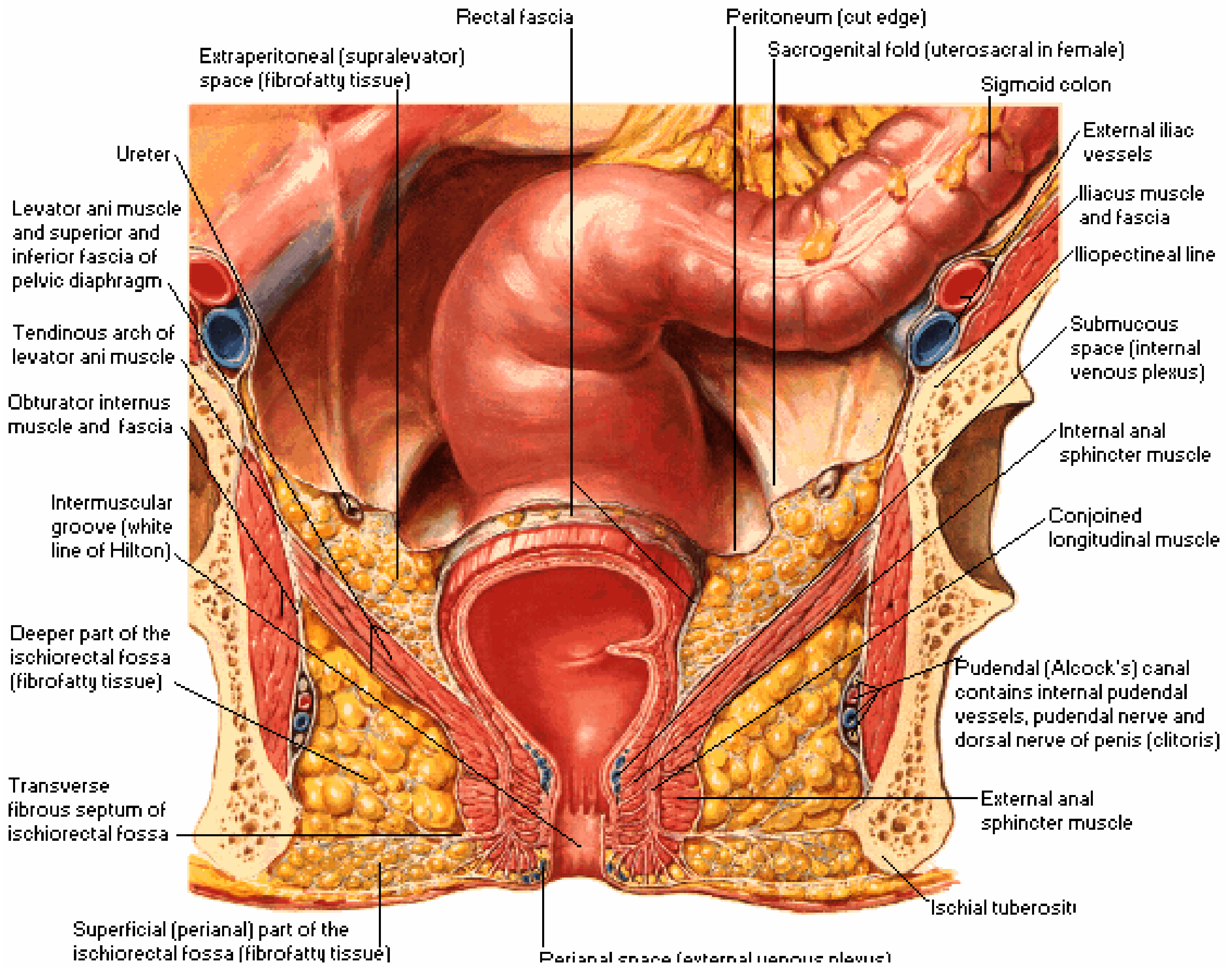


Rectum of Male in Situ



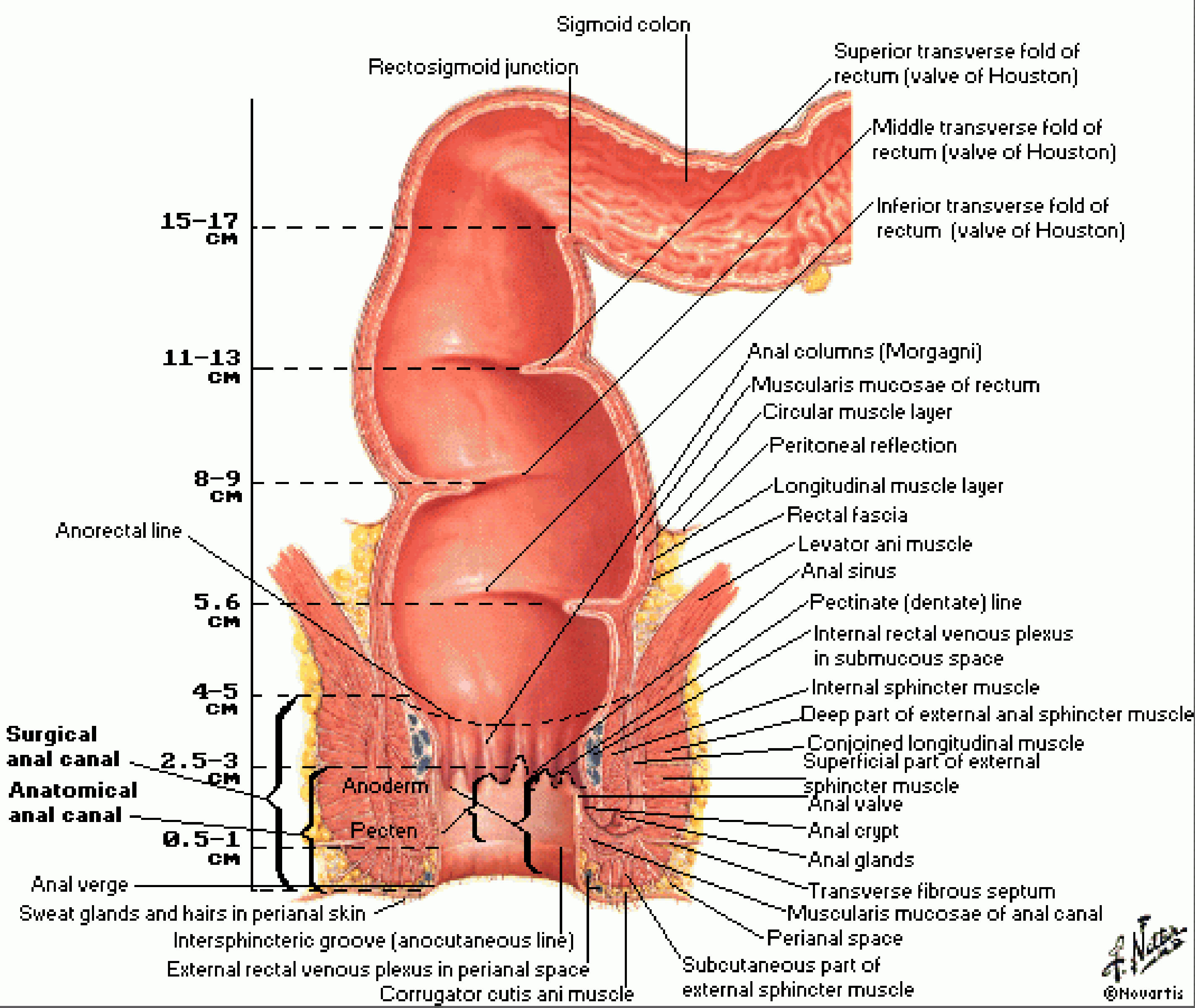
Rectum of Female in Situ



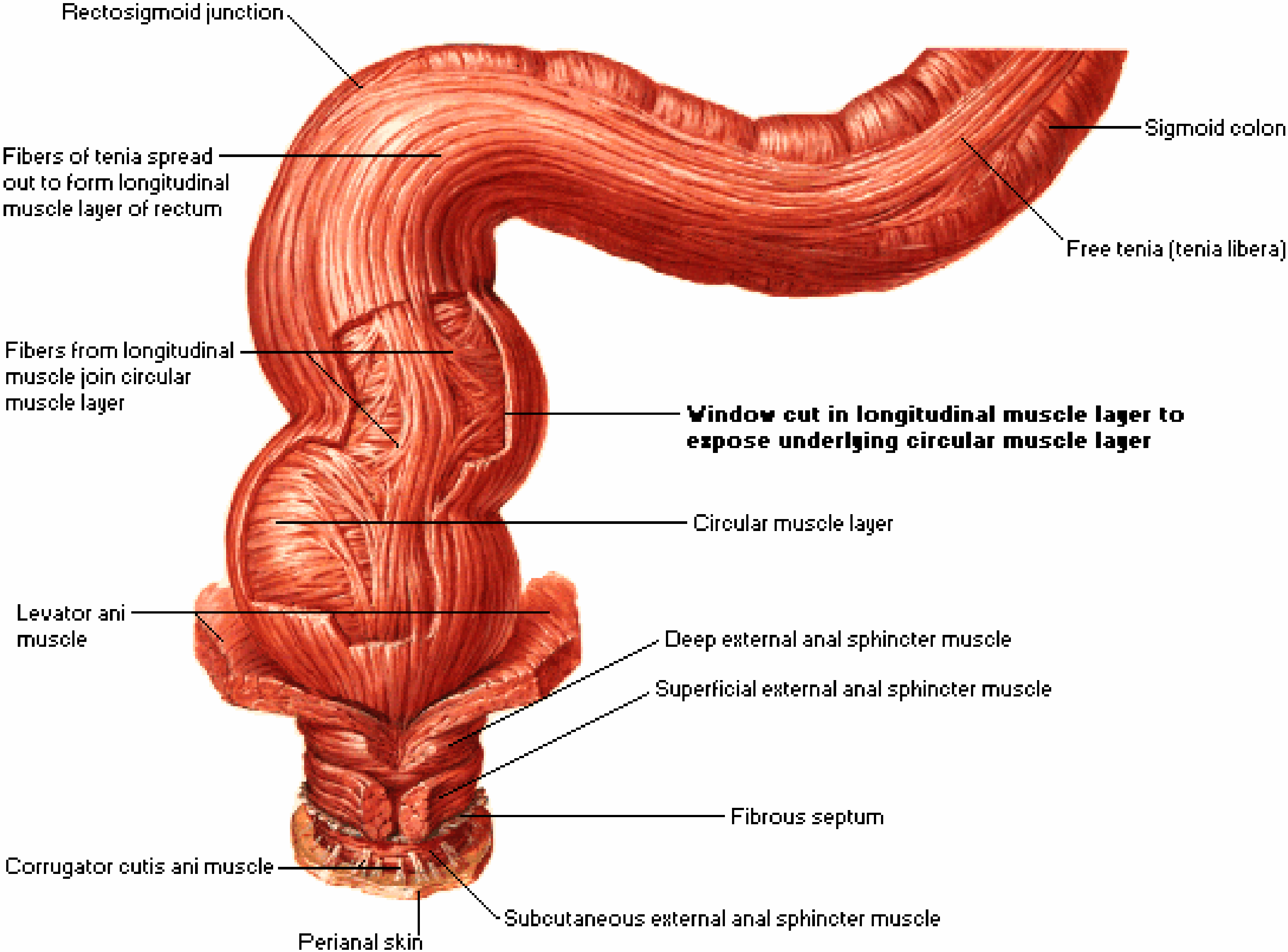


Rectal fascia
Peritoneum (cut edge)
Extraperitoneal (supralevator) space (fibrofatty tissue)
Sacrogenital fold (uterosacral in female)
Sigmoid colon
Ureter
External iliac vessels
Levator ani muscle and superior and inferior fascia of pelvic diaphragm
Iliacus muscle and fascia
Iliopectineal line
Tendinous arch of levator ani muscle
Submucous space (internal venous plexus)
Obturator internus muscle and fascia
Internal anal sphincter muscle
Intermuscular groove (white line of Hilton)
Conjoined longitudinal muscle
Deeper part of the ischiorectal fossa (fibrofatty tissue)
Pudendal (Alcock's) canal contains internal pudendal vessels, pudendal nerve and dorsal nerve of penis (clitoris)
Transverse fibrous septum of ischiorectal fossa
External anal sphincter muscle
Ischial tuberosit
Superficial (perianal) part of the ischiorectal fossa (fibrofatty tissue)
Perianal space (external venous plexus)

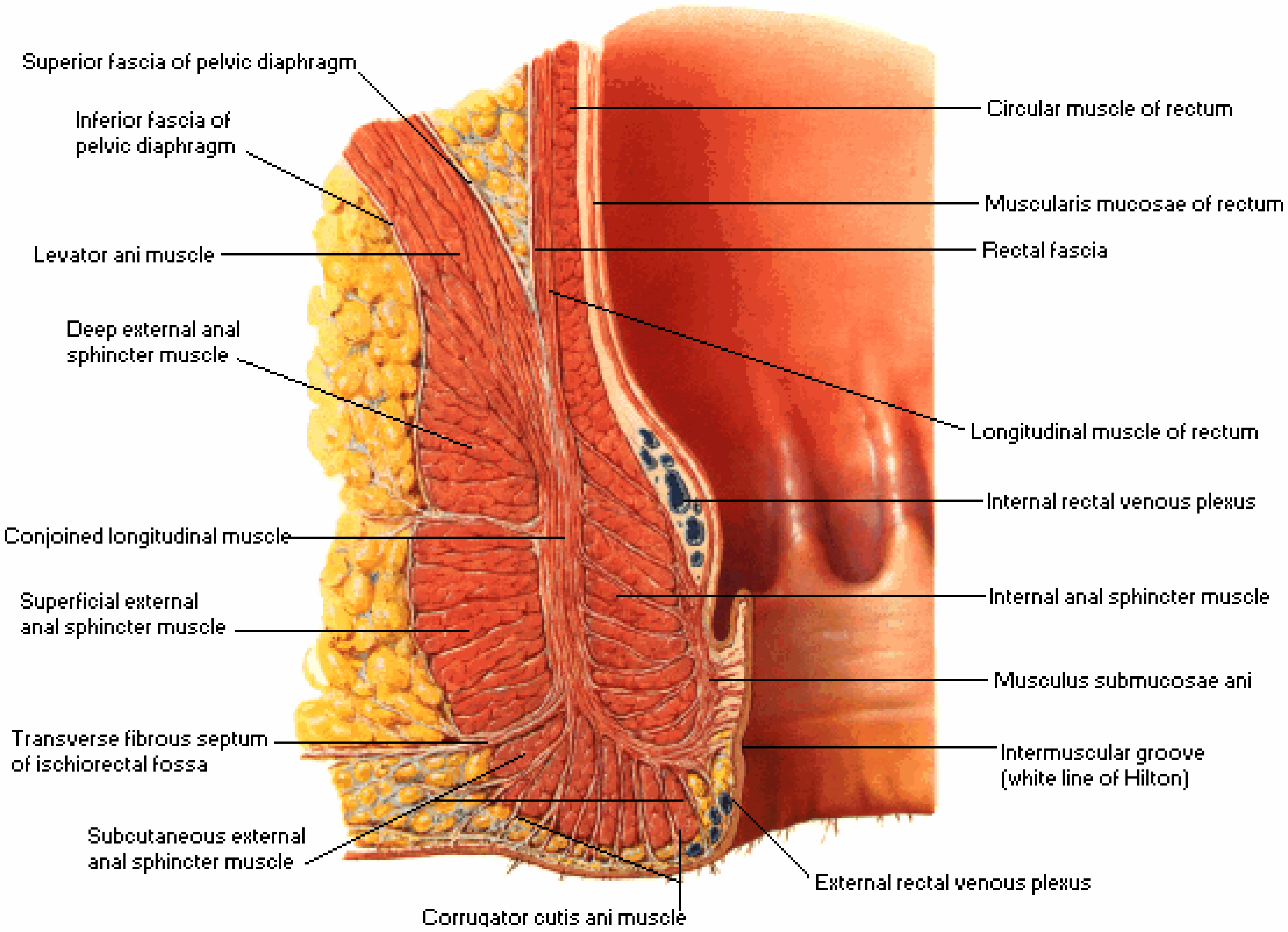
Rectum and Anal Canal



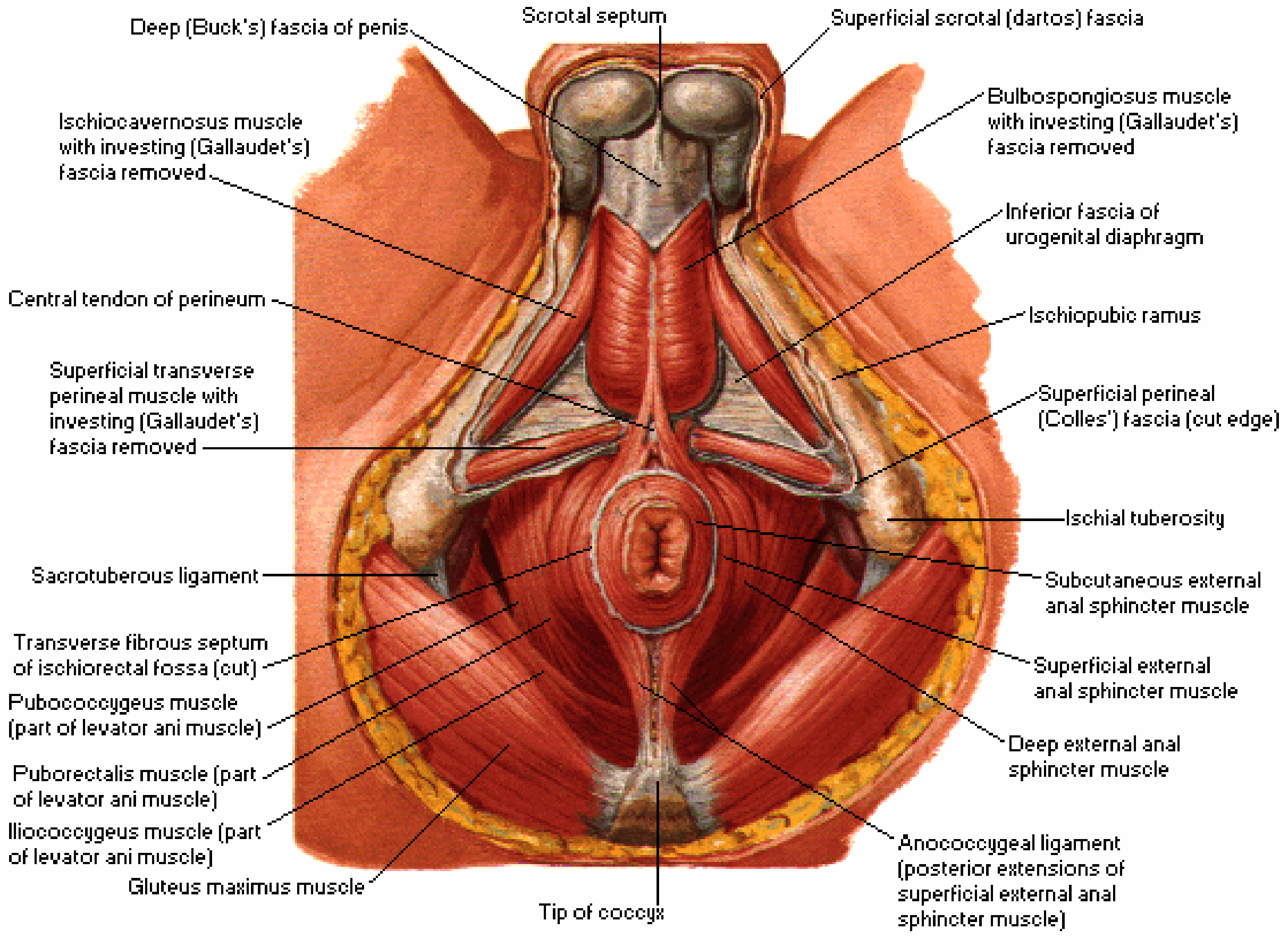
Anterior View



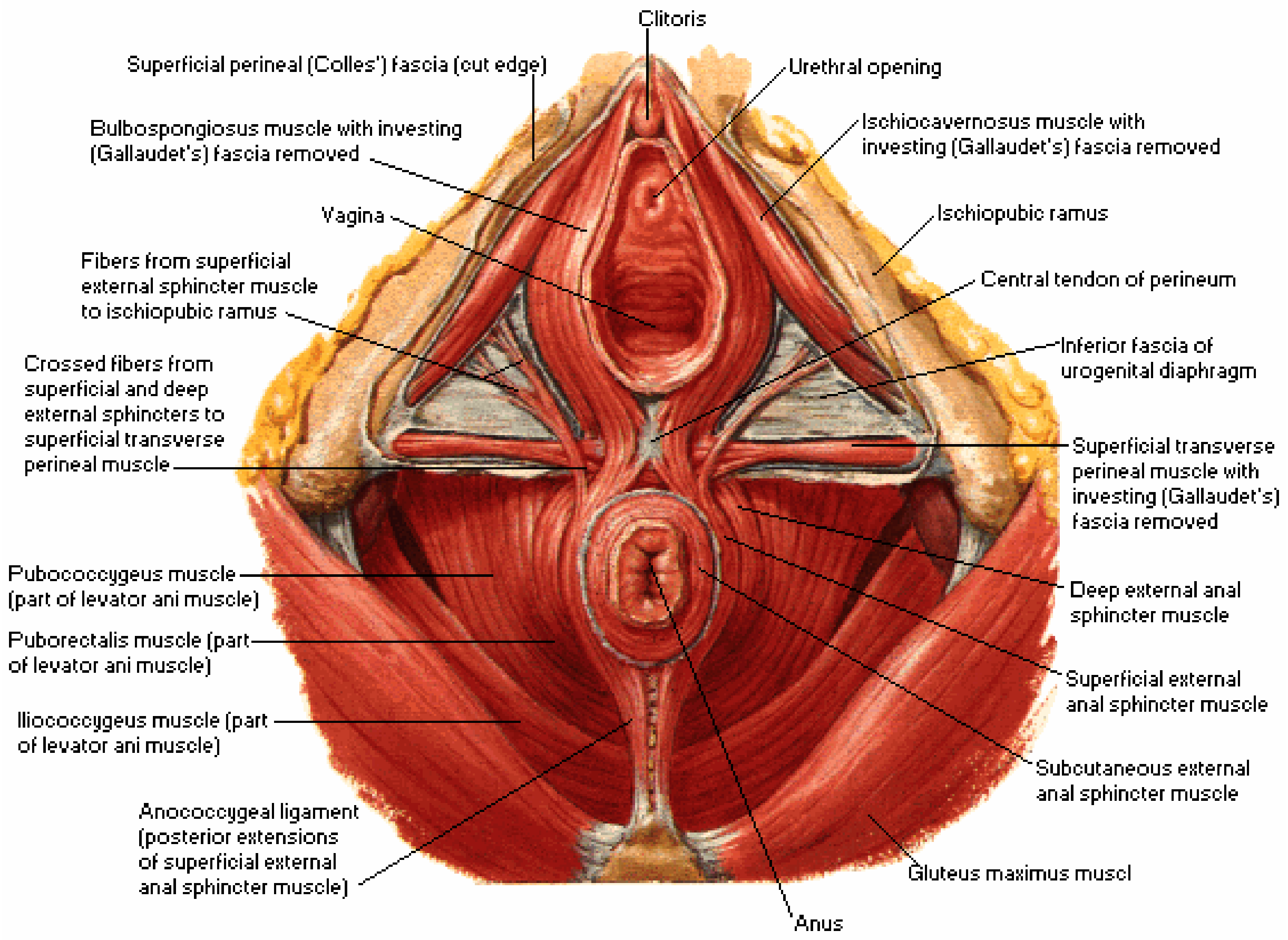
Frontal Section



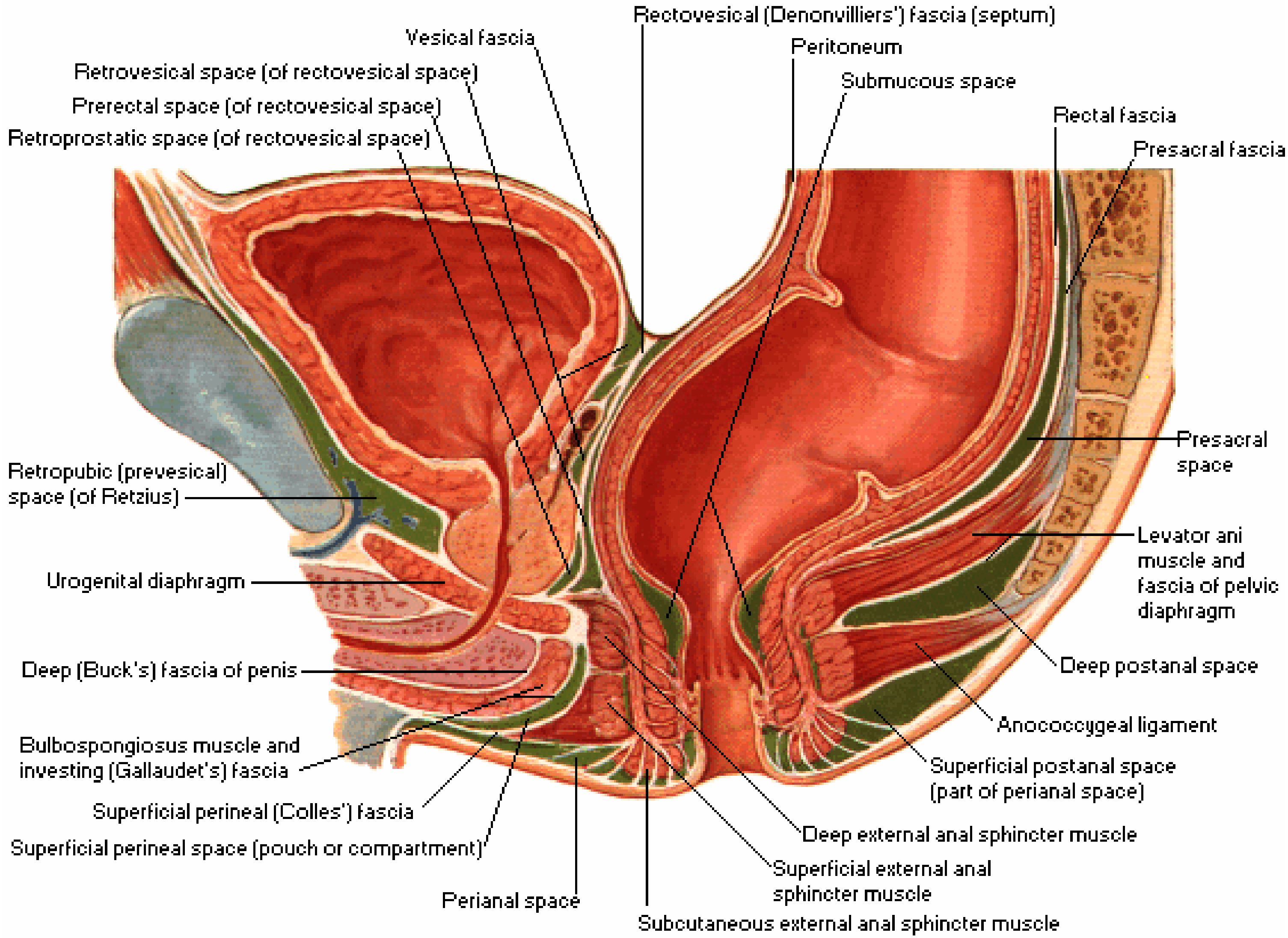
Perineal View



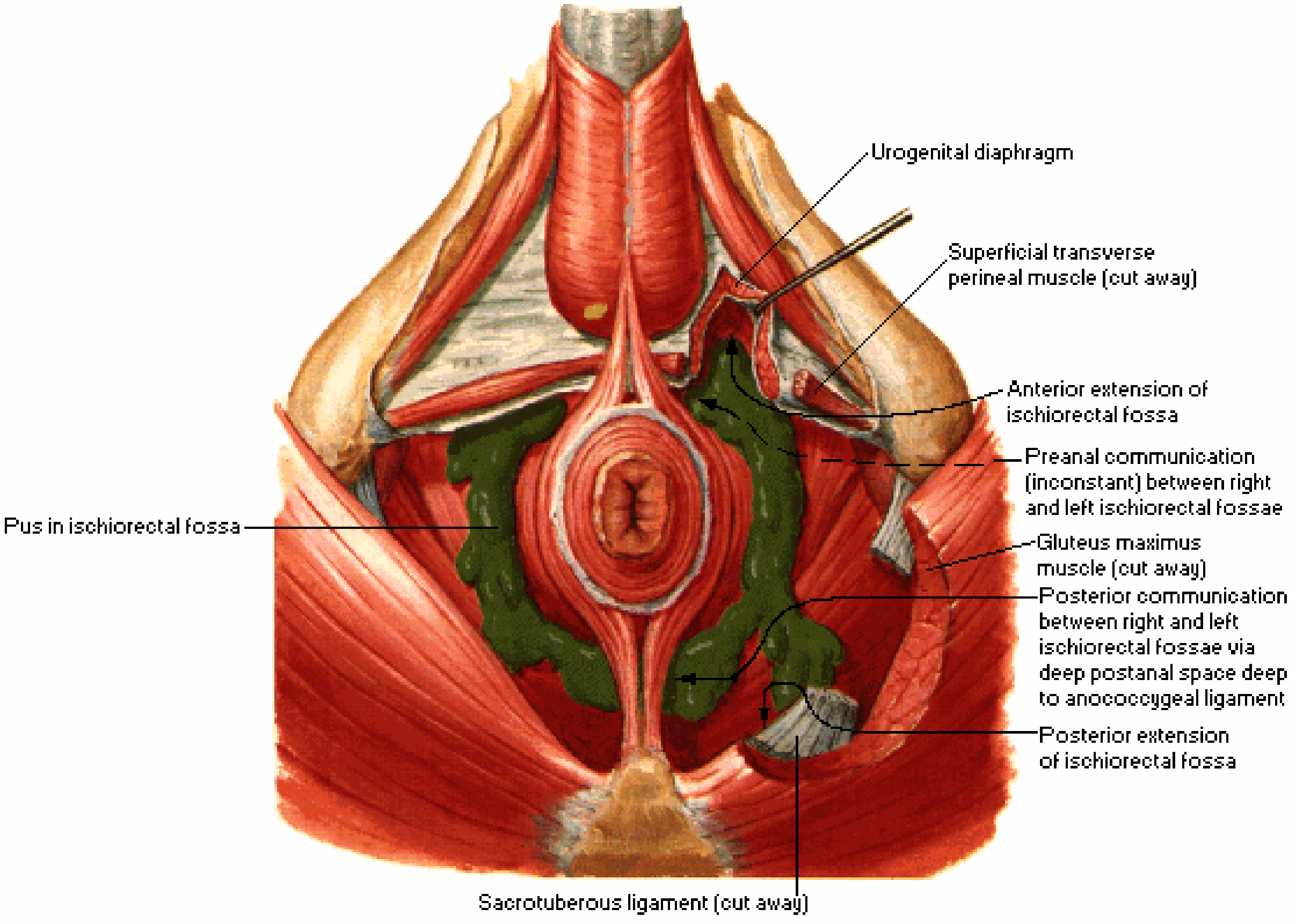
Perineal View

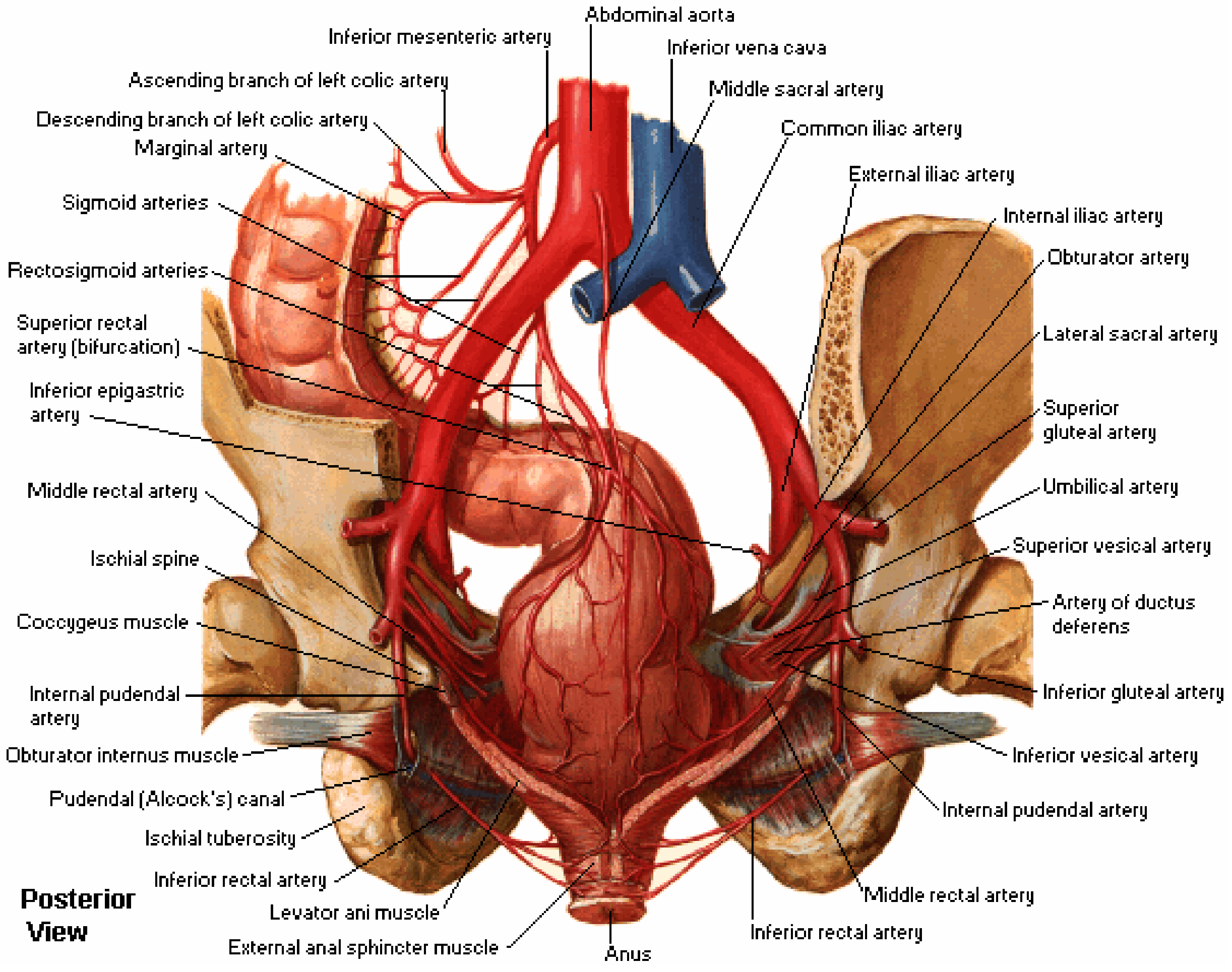


Sagittal Section



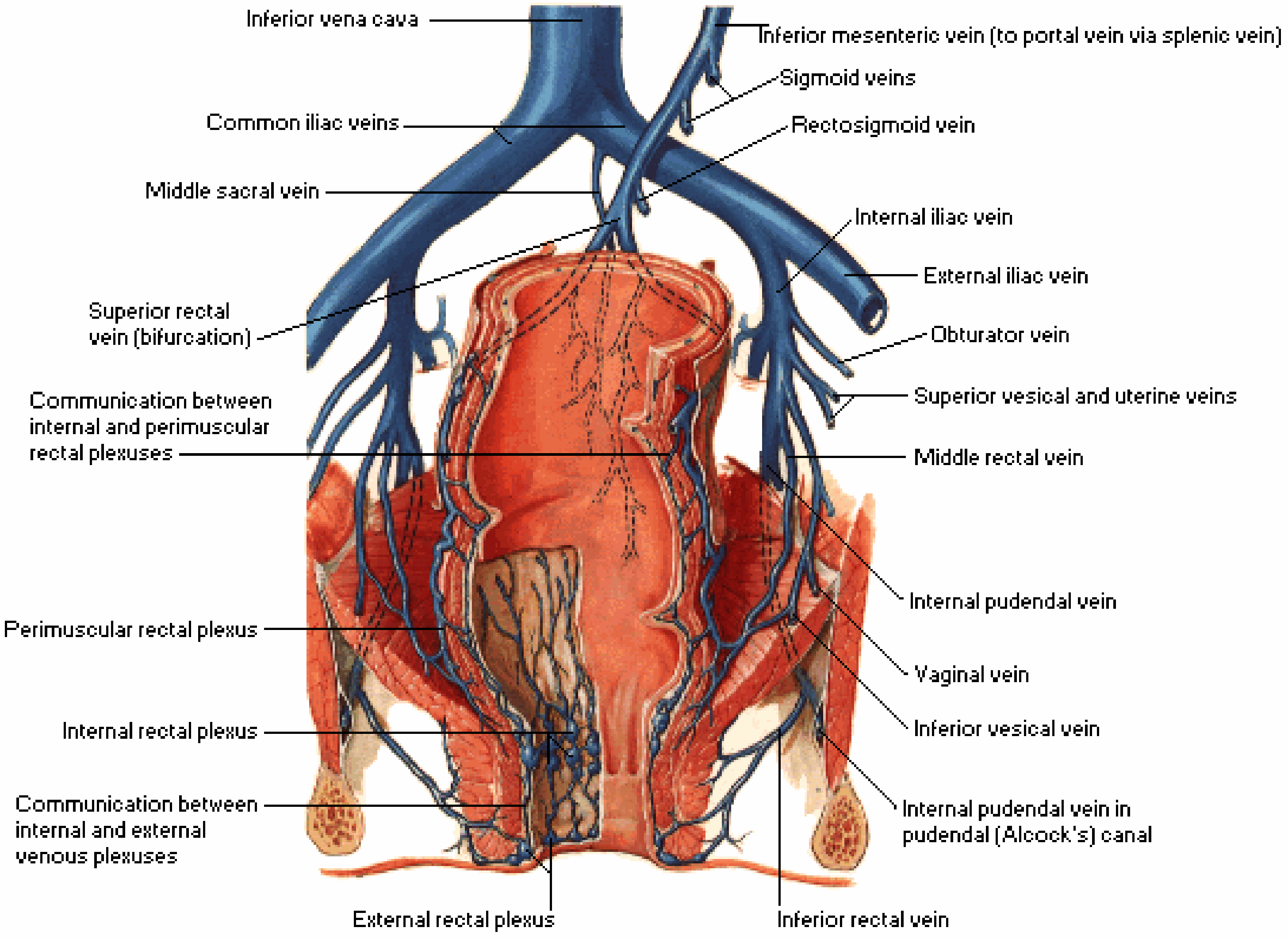
Perineal View





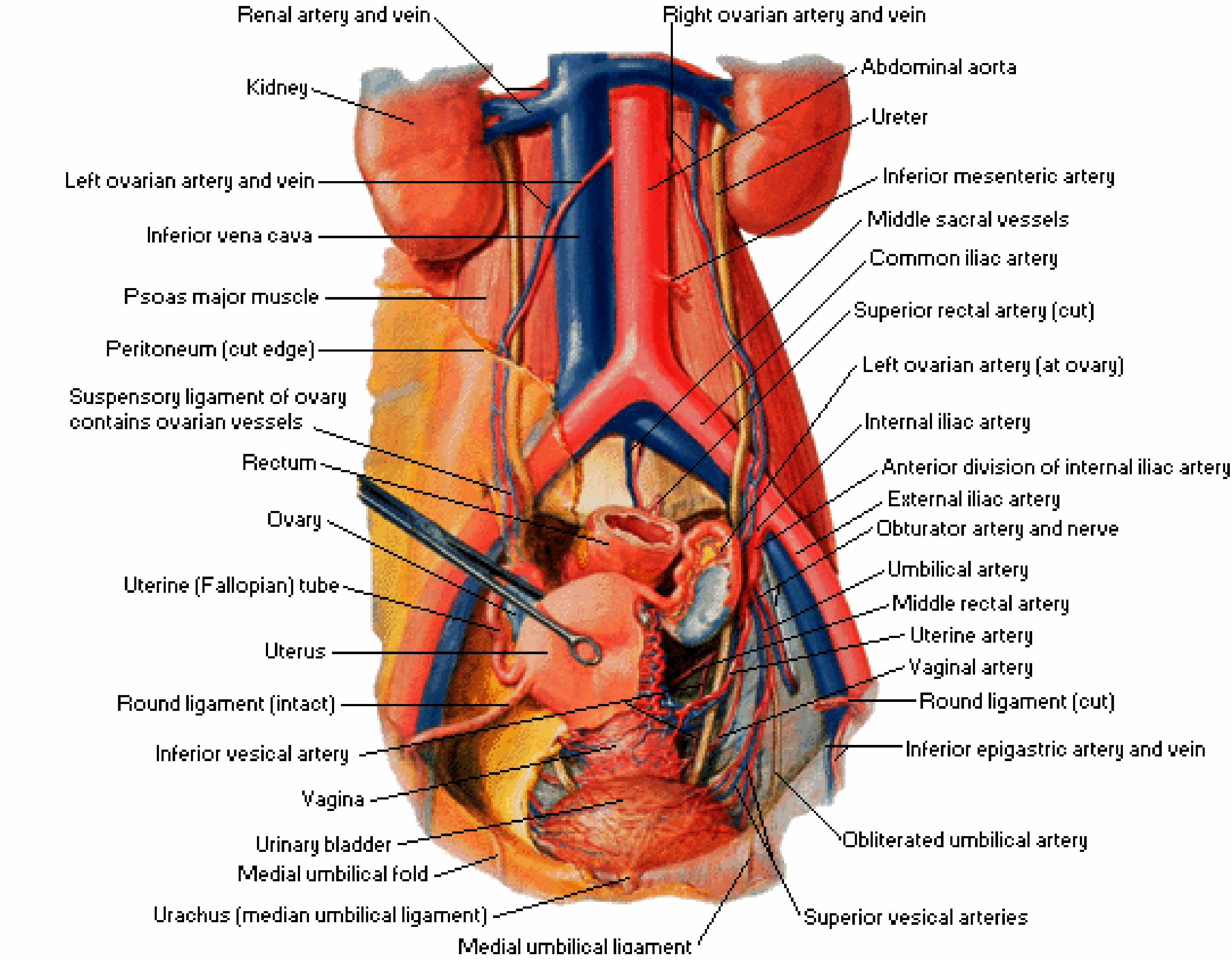
Posterior View

Anterior View

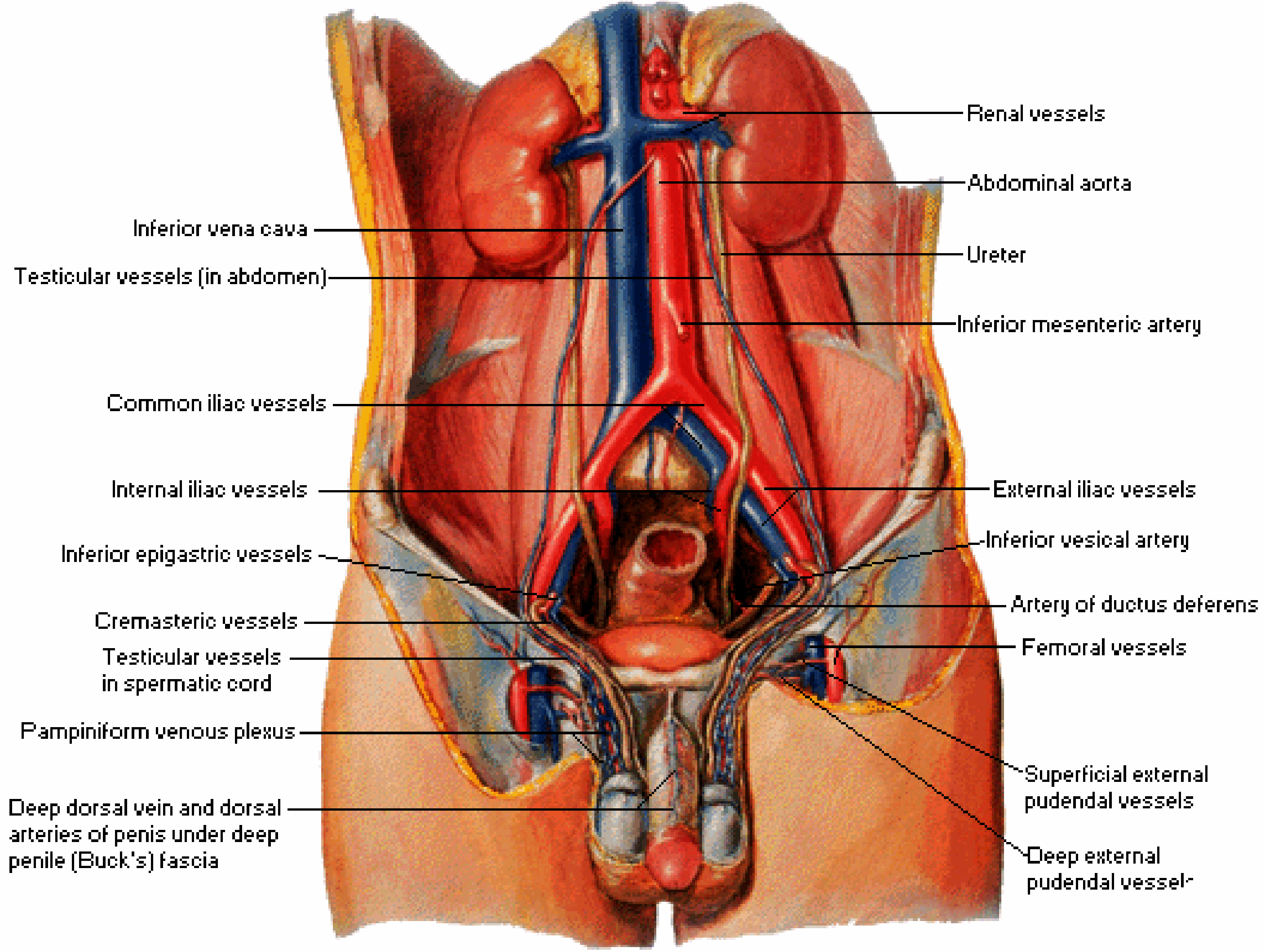


Anterior View

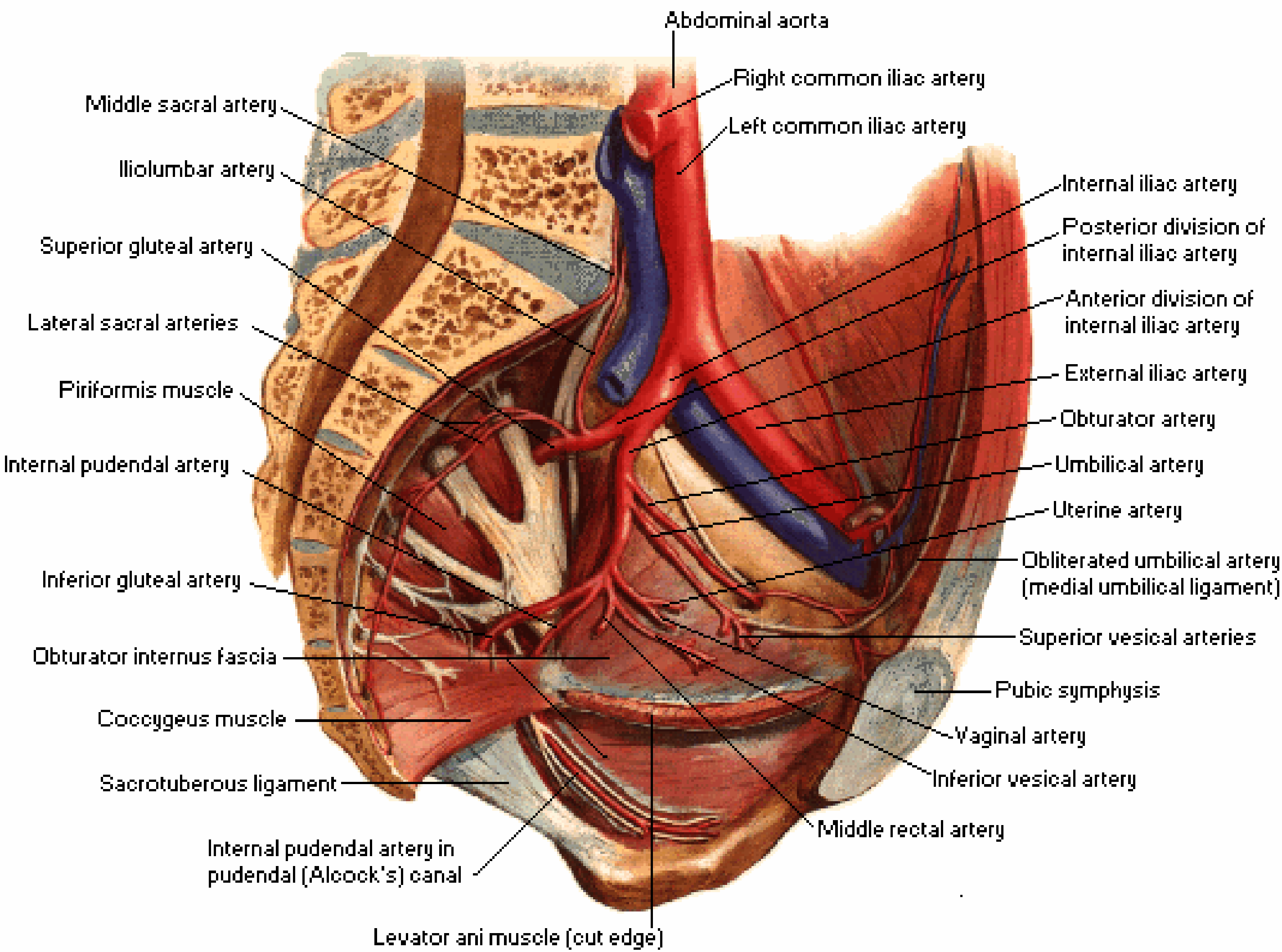
Female



Anterior View

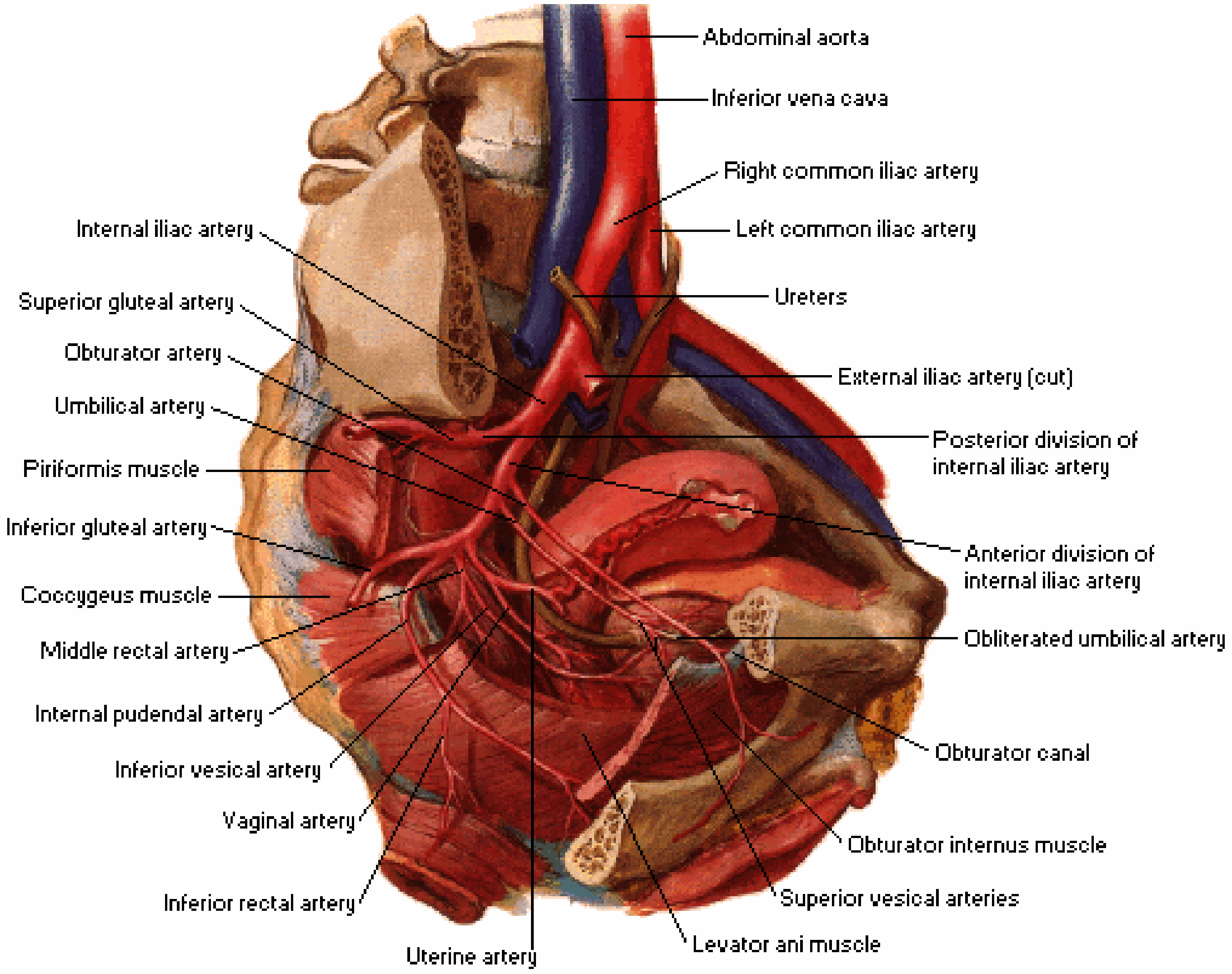


Female - Sagittal Section



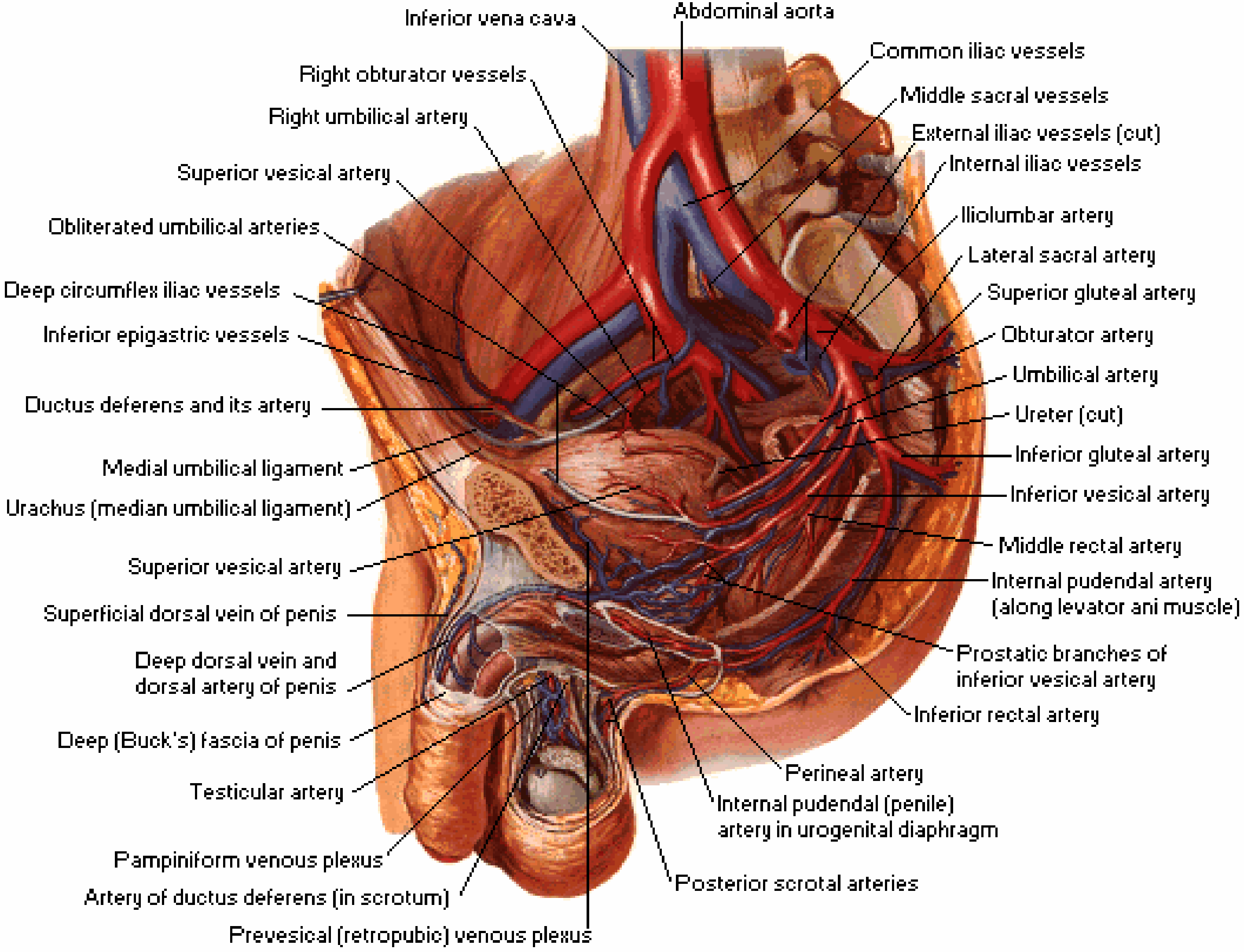
Female - Right Paramedian Section

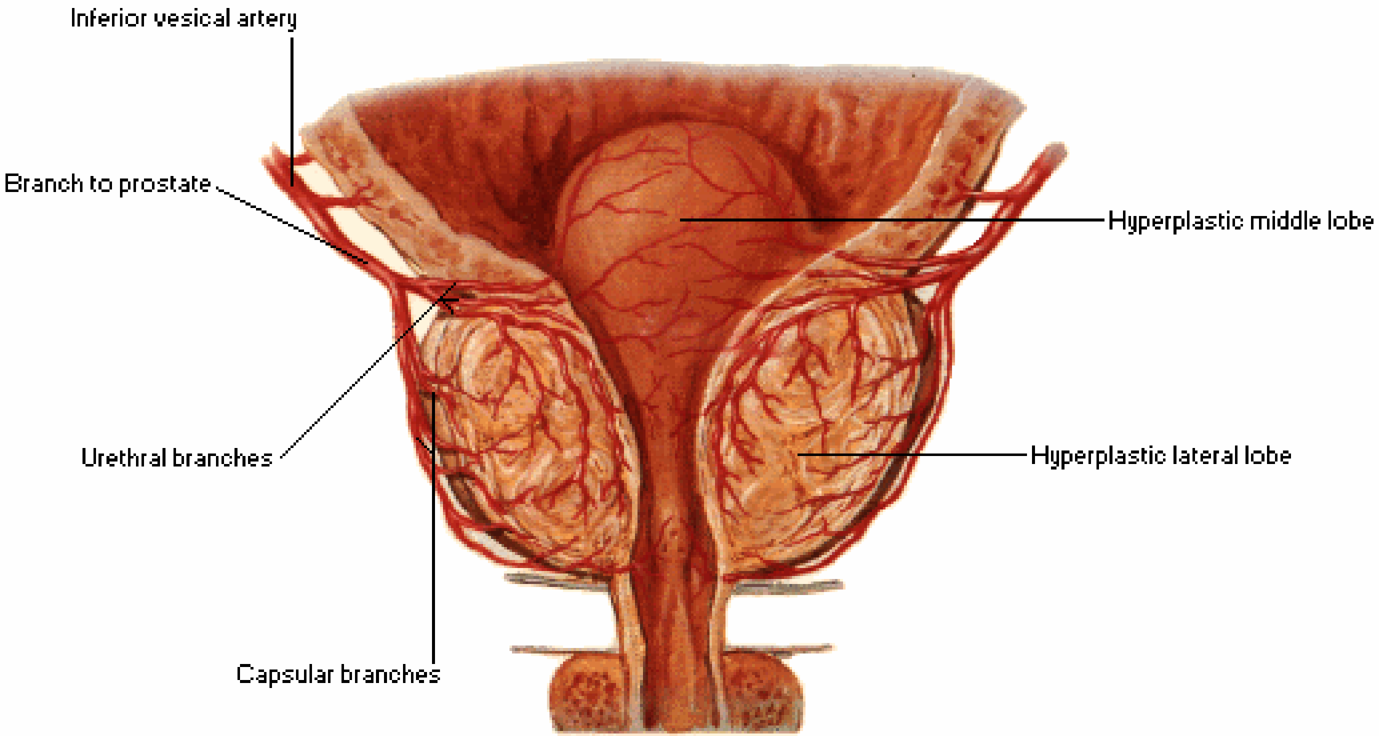
Lateral View



Male - Left Paramedian Section

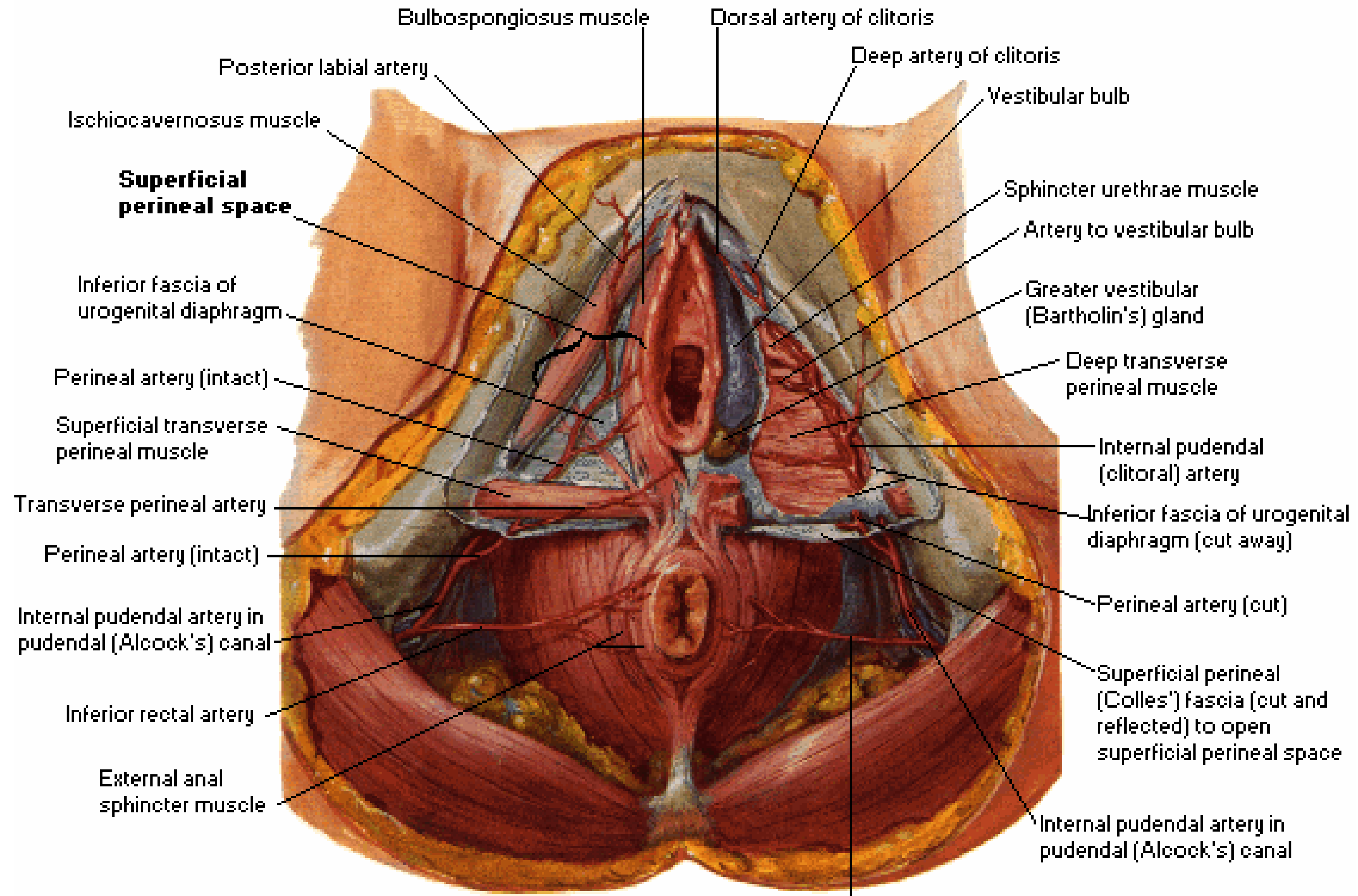
Lateral View



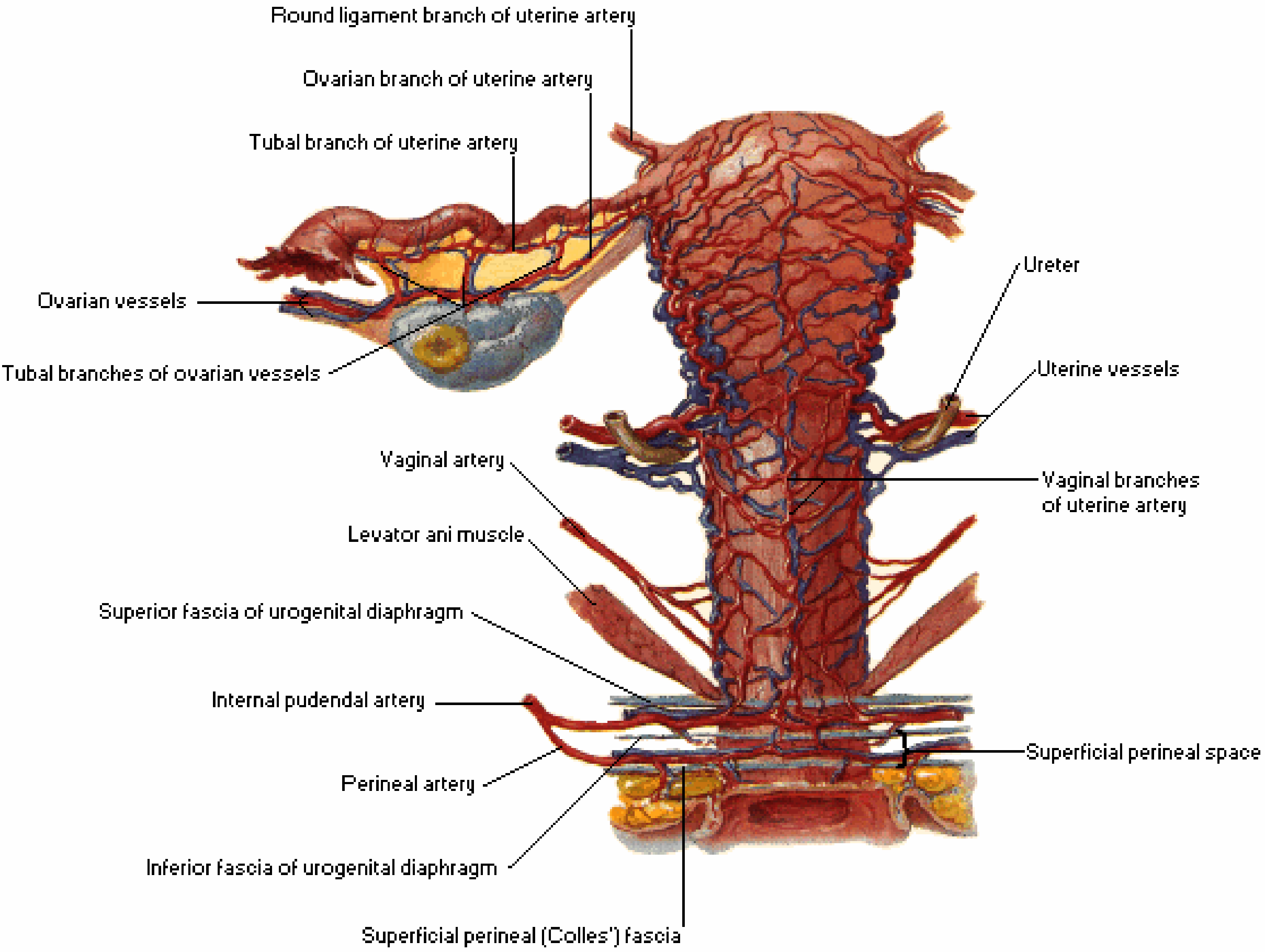


Benign hyperplasia specimen

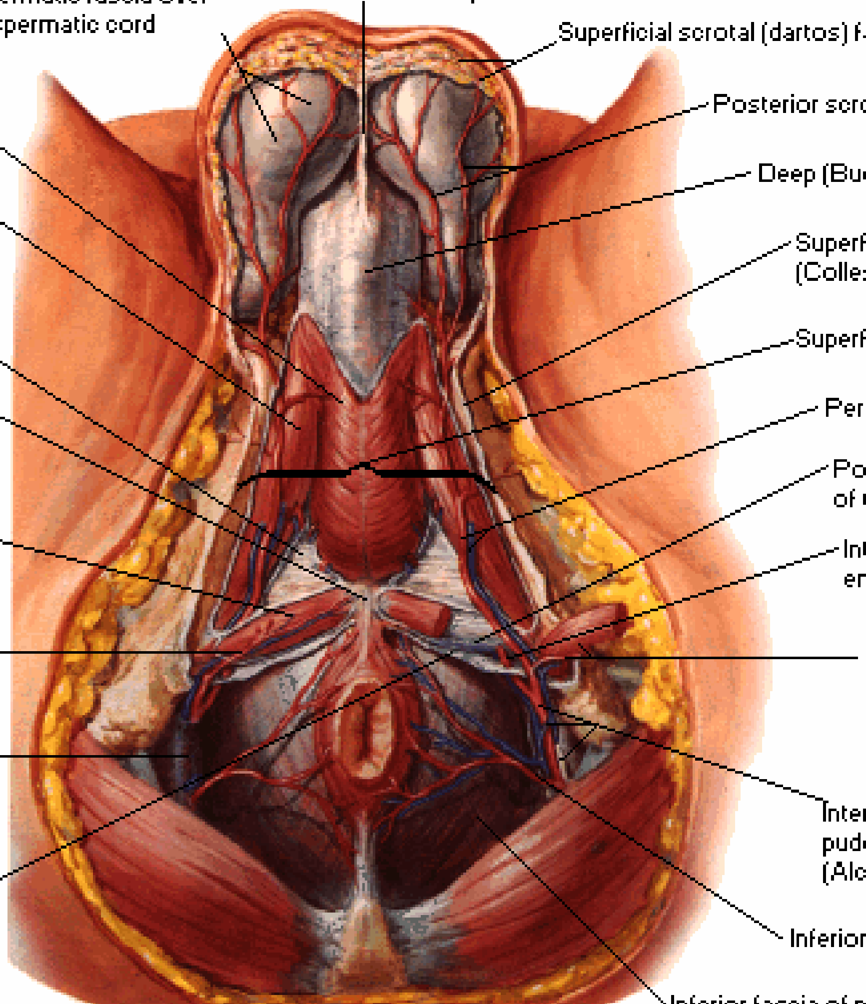
Female



Note: investing (Gallaudet's) fascia removed from muscles of superficial perineal space

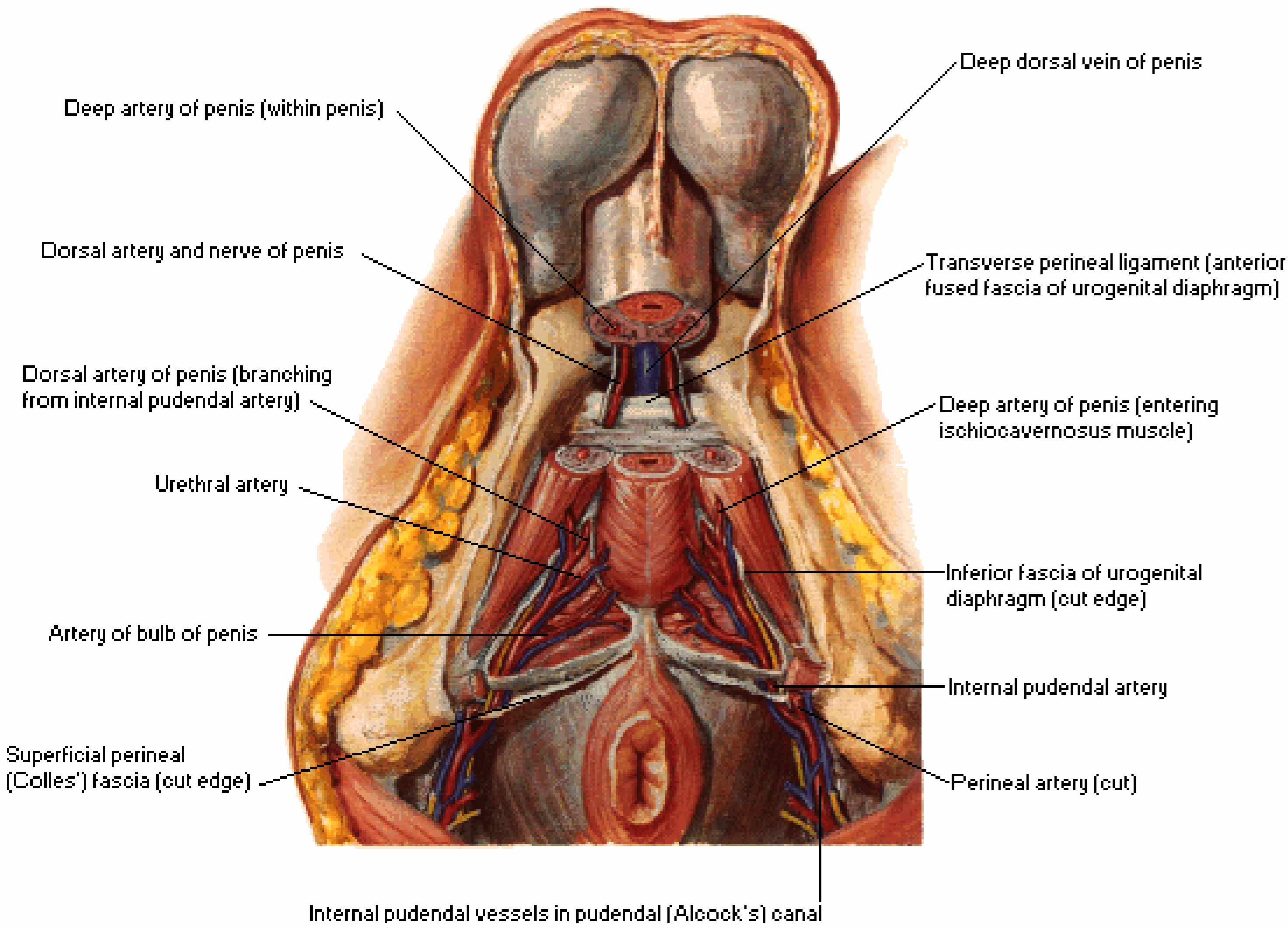

Round ligament branch of uterine artery
Ovarian branch of uterine artery
Tubal branch of uterine artery
Ovarian vessels
Tubal branches of ovarian vessels
Ureter
Uterine vessels
Vaginal artery
Vaginal branches of uterine artery
Levator ani muscle
Superior fascia of urogenital diaphragm
Internal pudendal artery
Superficial perineal space
Perineal artery
Inferior fascia of urogenital diaphragm
Superficial perineal (Colles') fascia

Male

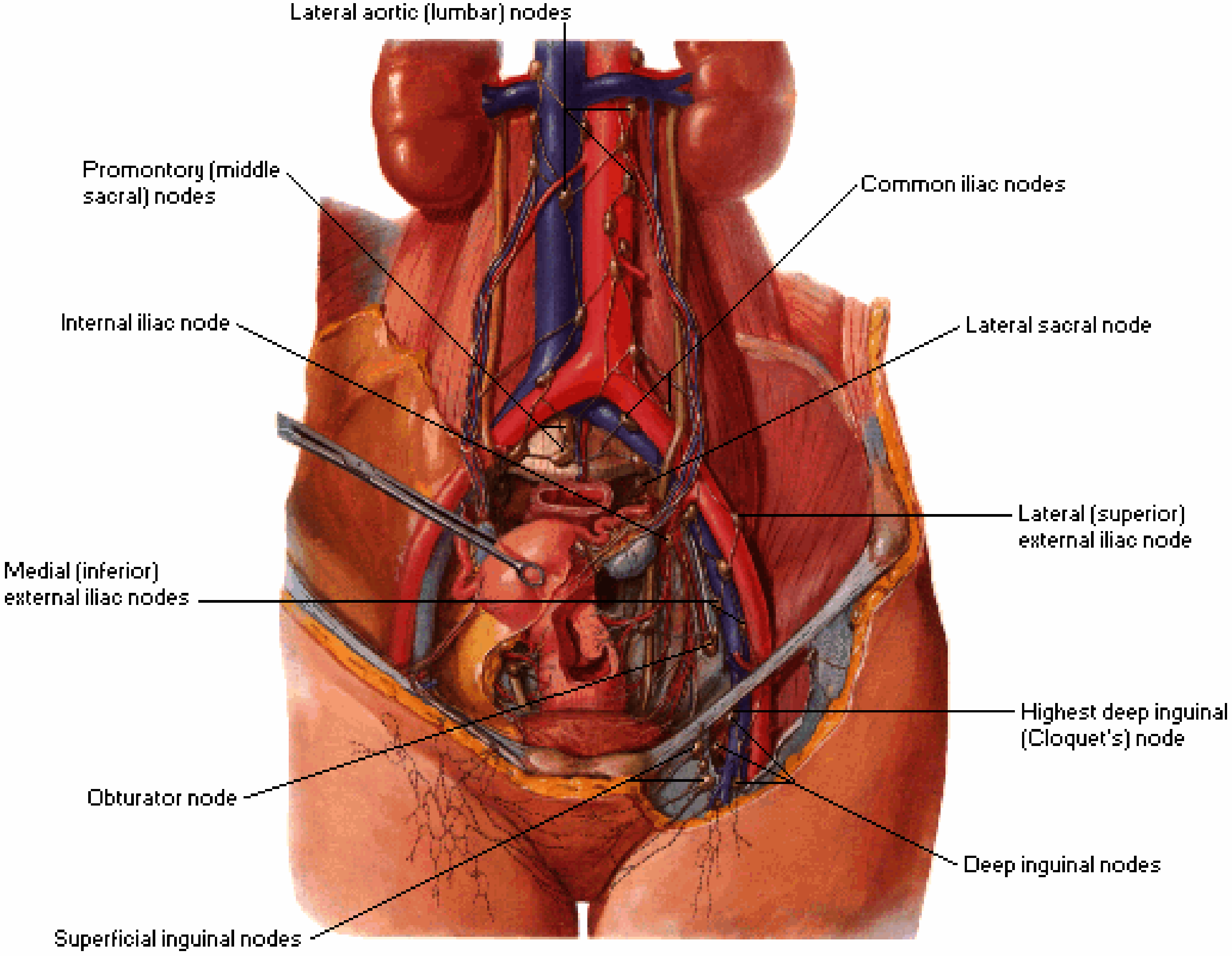


Note: investing (Gallaudet's) fascia removed from muscles of superficial perineal space

Male

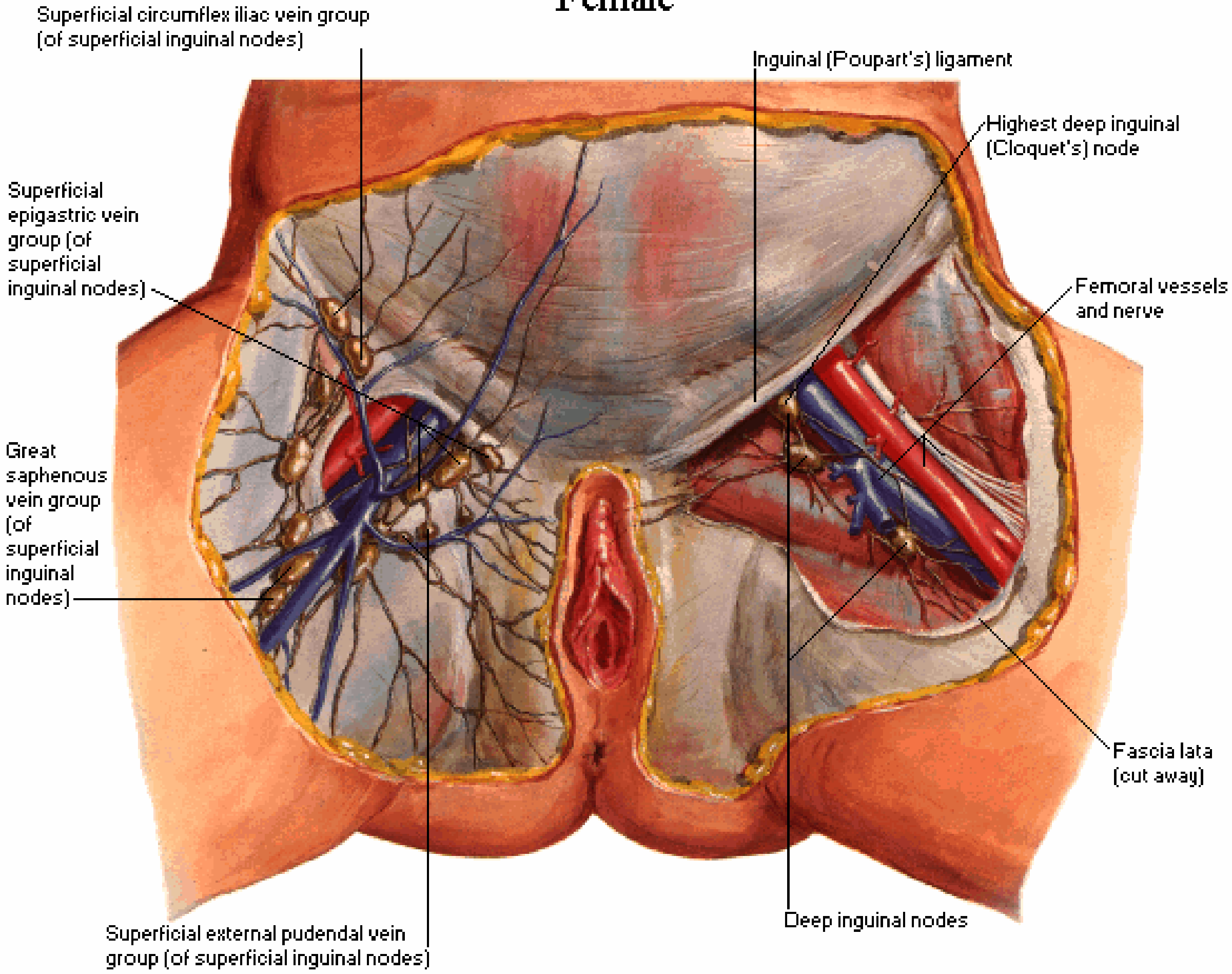

Deep dorsal vein of penis
Deep artery of penis (within penis)
Dorsal artery and nerve of penis
Transverse perineal ligament (anterior fused fascia of urogenital diaphragm)
Dorsal artery of penis (branching from internal pudendal artery)
Deep artery of penis (entering ischiocavernosus muscle)
Urethral artery
Inferior fascia of urogenital diaphragm (cut edge)
Artery of bulb of penis
Internal pudendal artery
Superficial perineal (Colles') fascia (cut edge)
Perineal artery (cut)
Internal pudendal vessels in pudendal (Alcock's) canal

Female



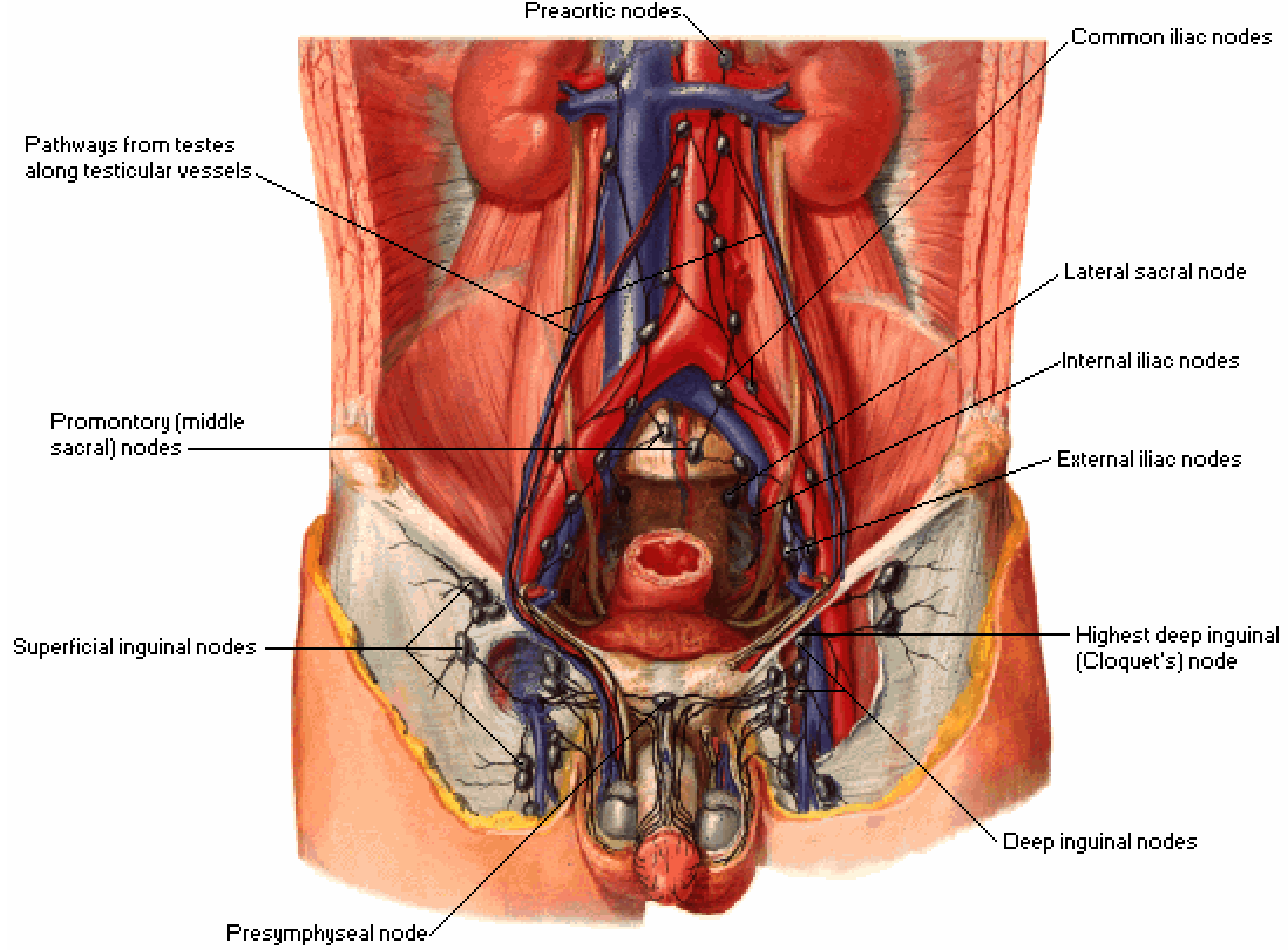
Lateral aortic (lumbar) nodes
Promontory (middle sacral) nodes
Common iliac nodes
Internal iliac node
Lateral sacral node
Lateral (superior) external iliac node
Medial (inferior) external iliac nodes
Highest deep inguinal (Cloquet's) node
Obturator node
Deep inguinal nodes
Superficial inguinal nodes

Female

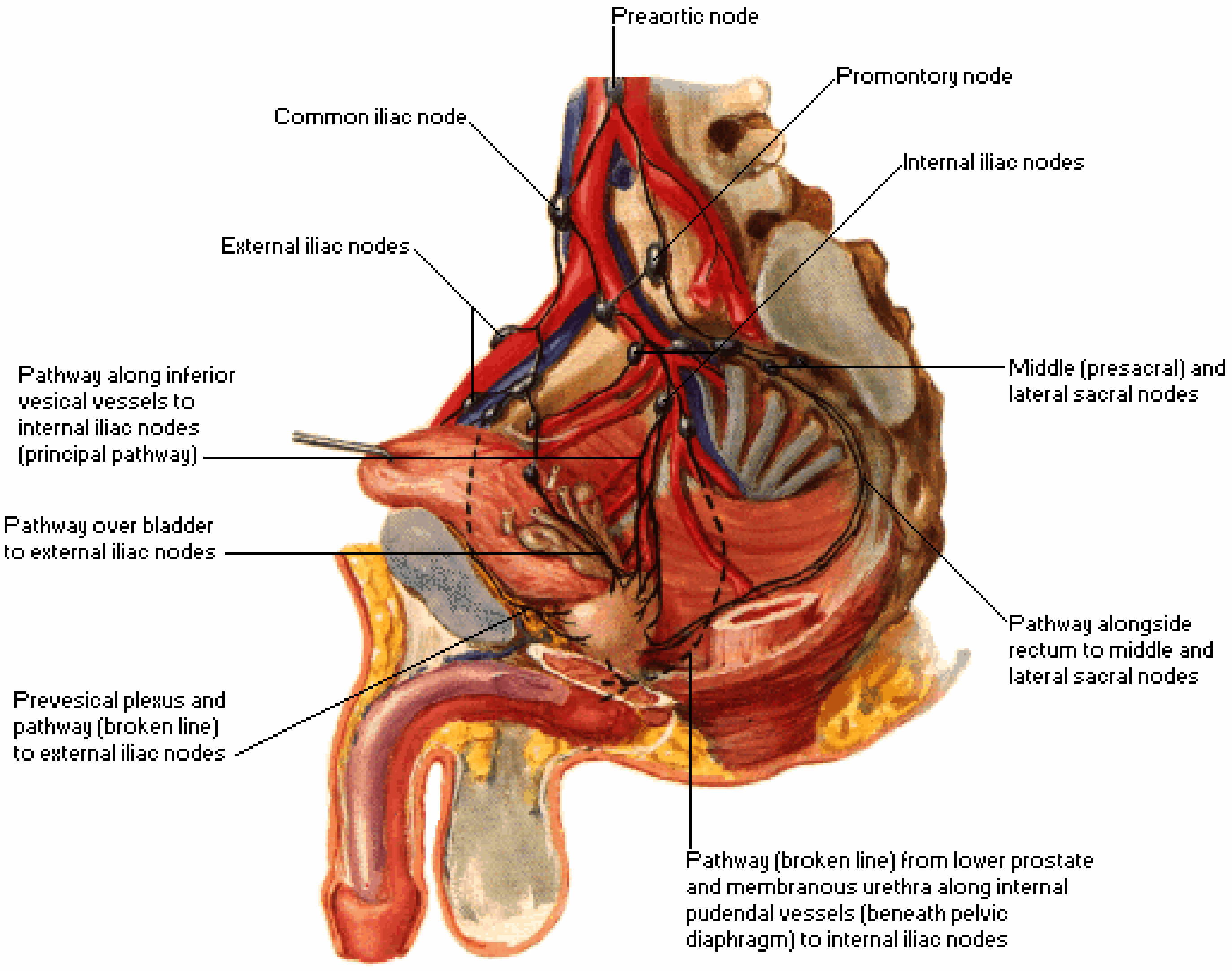


Superficial circumflex iliac vein group (of superficial inguinal nodes)
Inguinal (Poupart's) ligament
Highest deep inguinal (Cloquet's) node
Superficial epigastric vein group (of superficial inguinal nodes)
Femoral vessels and nerve
Great saphenous vein group (of superficial inguinal nodes)
Fascia lata (cut away)
Superficial external pudendal vein group (of superficial inguinal nodes)
Deep inguinal nodes

Male

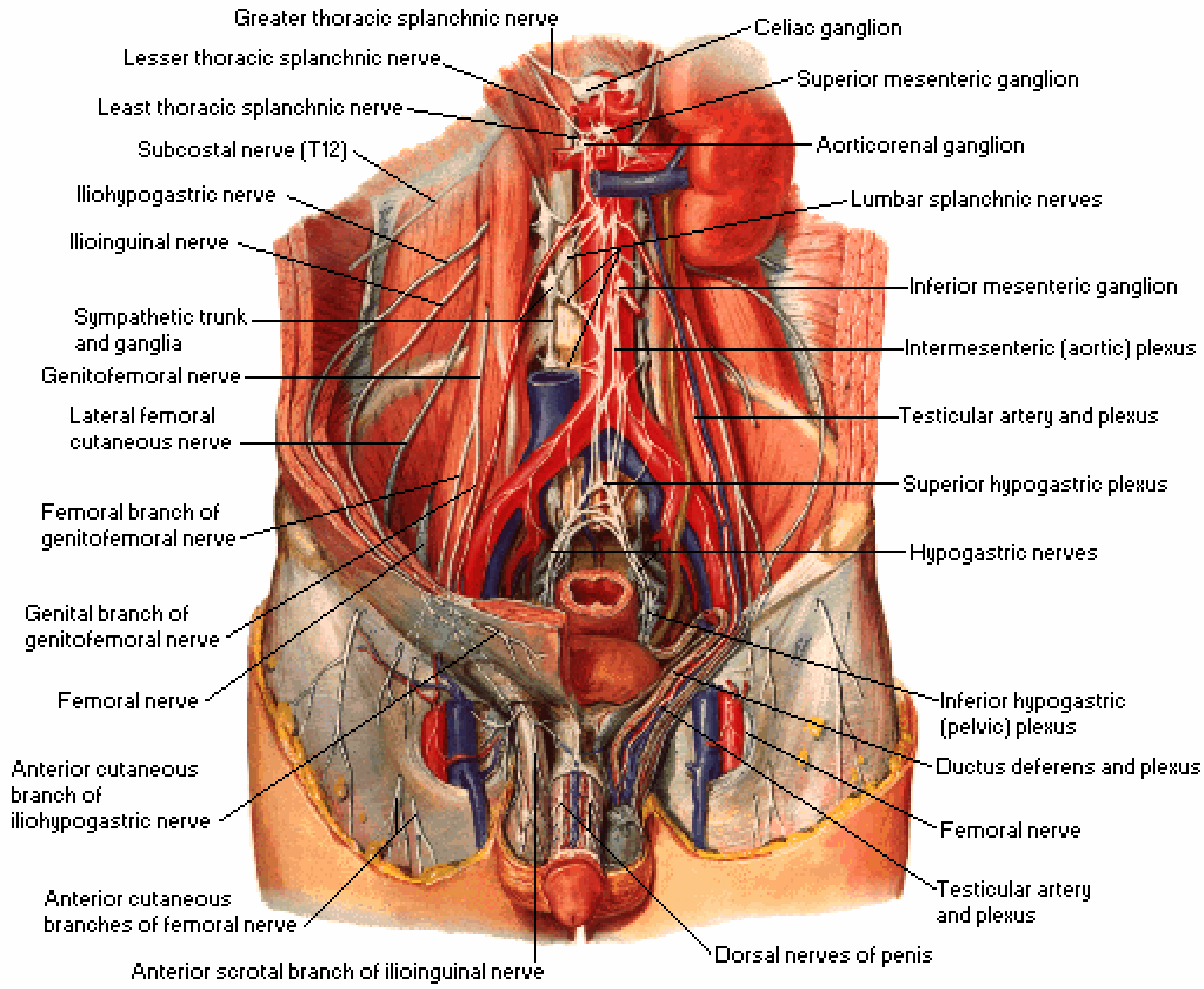


Preaortic nodes
Common iliac nodes
Pathways from testes along testicular vessels
Lateral sacral node
Internal iliac nodes
Promontory (middle sacral) nodes
External iliac nodes
Superficial inguinal nodes
Highest deep inguinal (Cloquet's) node
Deep inguinal nodes
Presymphyseal node



Preaortic node
Promontory node
Common iliac node
Internal iliac nodes
External iliac nodes
Middle (presacral) and lateral sacral nodes
Pathway along inferior vesical vessels to internal iliac nodes (principal pathway)
Pathway over bladder to external iliac nodes
Pathway alongside rectum to middle and lateral sacral nodes
Prevesical plexus and pathway (broken line) to external iliac nodes
Pathway (broken line) from lower prostate and membranous urethra along internal pudendal vessels (beneath pelvic diaphragm) to internal iliac nodes

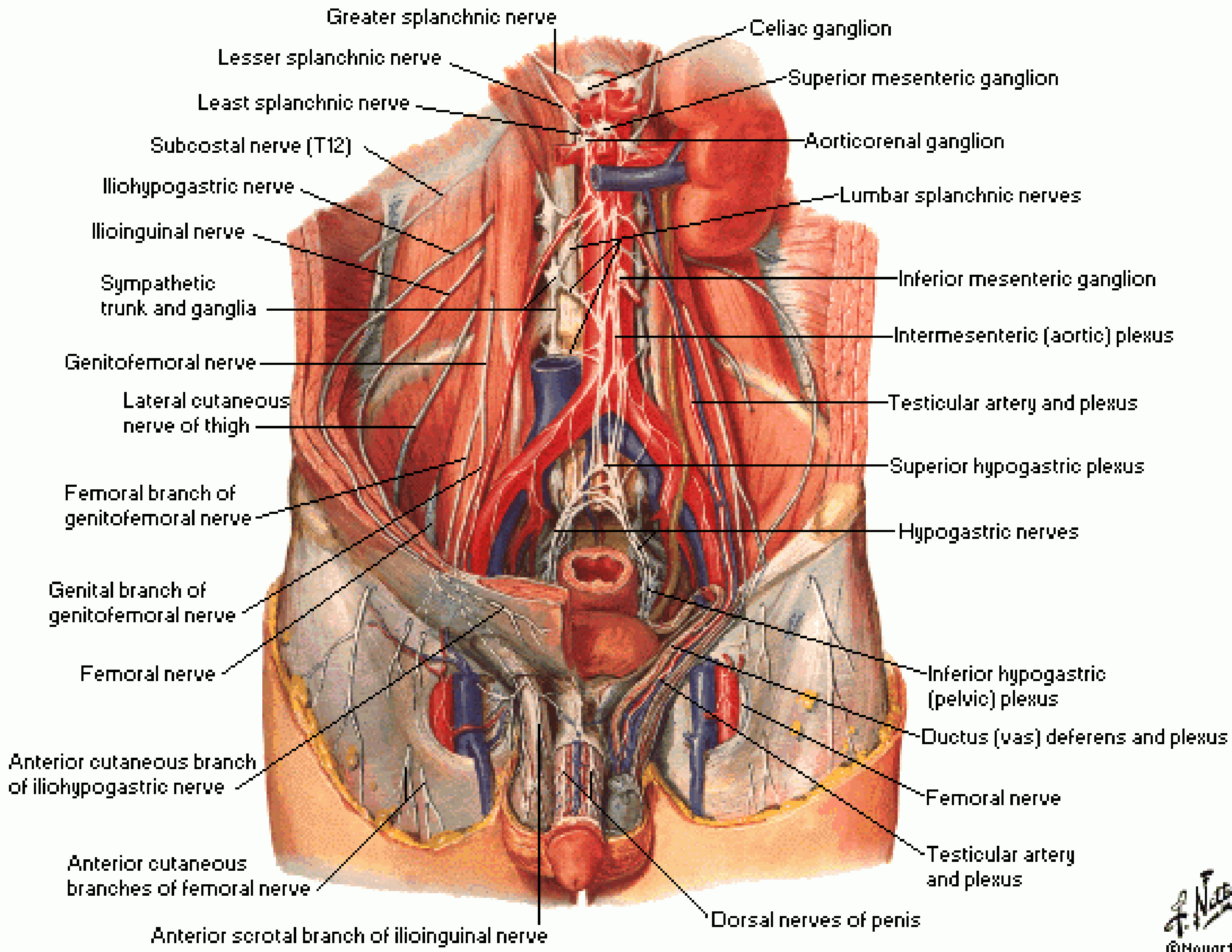
Male



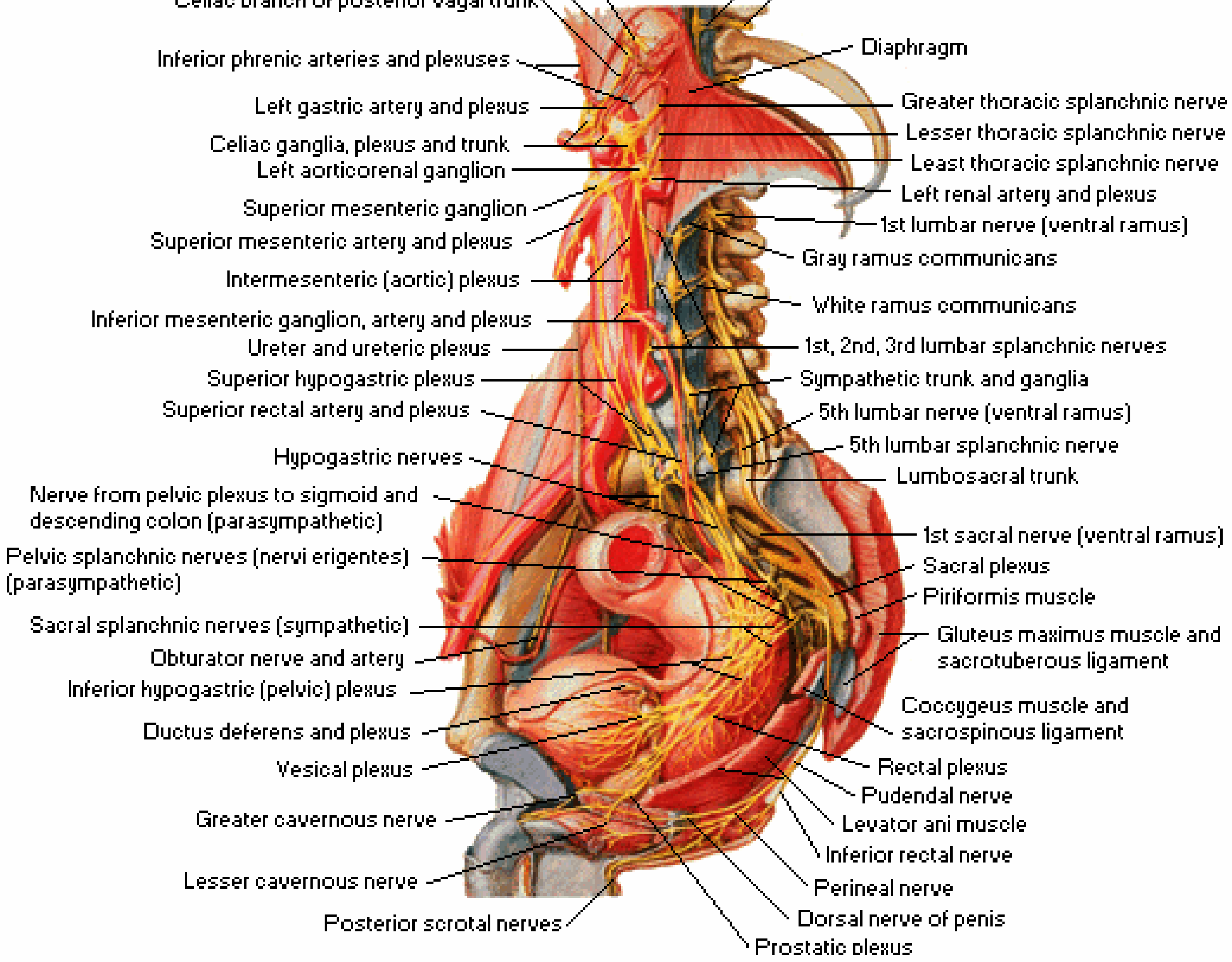
Greater thoracic splanchnic nerve
Lesser thoracic splanchnic nerve
Least thoracic splanchnic nerve
Subcostal nerve (T12)
Iliohypogastric nerve
Ilioinguinal nerve
Sympathetic trunk and ganglia
Genitofemoral nerve
Lateral femoral cutaneous nerve
Femoral branch of genitofemoral nerve
Genital branch of genitofemoral nerve
Femoral nerve
Anterior cutaneous branch of iliohypogastric nerve
Anterior cutaneous branches of femoral nerve
Anterior scrotal branch of ilioinguinal nerve
Celiac ganglion
Superior mesenteric ganglion
Aorticorenal ganglion
Lumbar splanchnic nerves
Inferior mesenteric ganglion
Intermesenteric (aortic) plexus
Testicular artery and plexus
Superior hypogastric plexus
Hypogastric nerves
Inferior hypogastric (pelvic) plexus
Ductus deferens and plexus
Femoral nerve
Testicular artery and plexus
Dorsal nerves of penis

Nerves of External Genitalia

Male

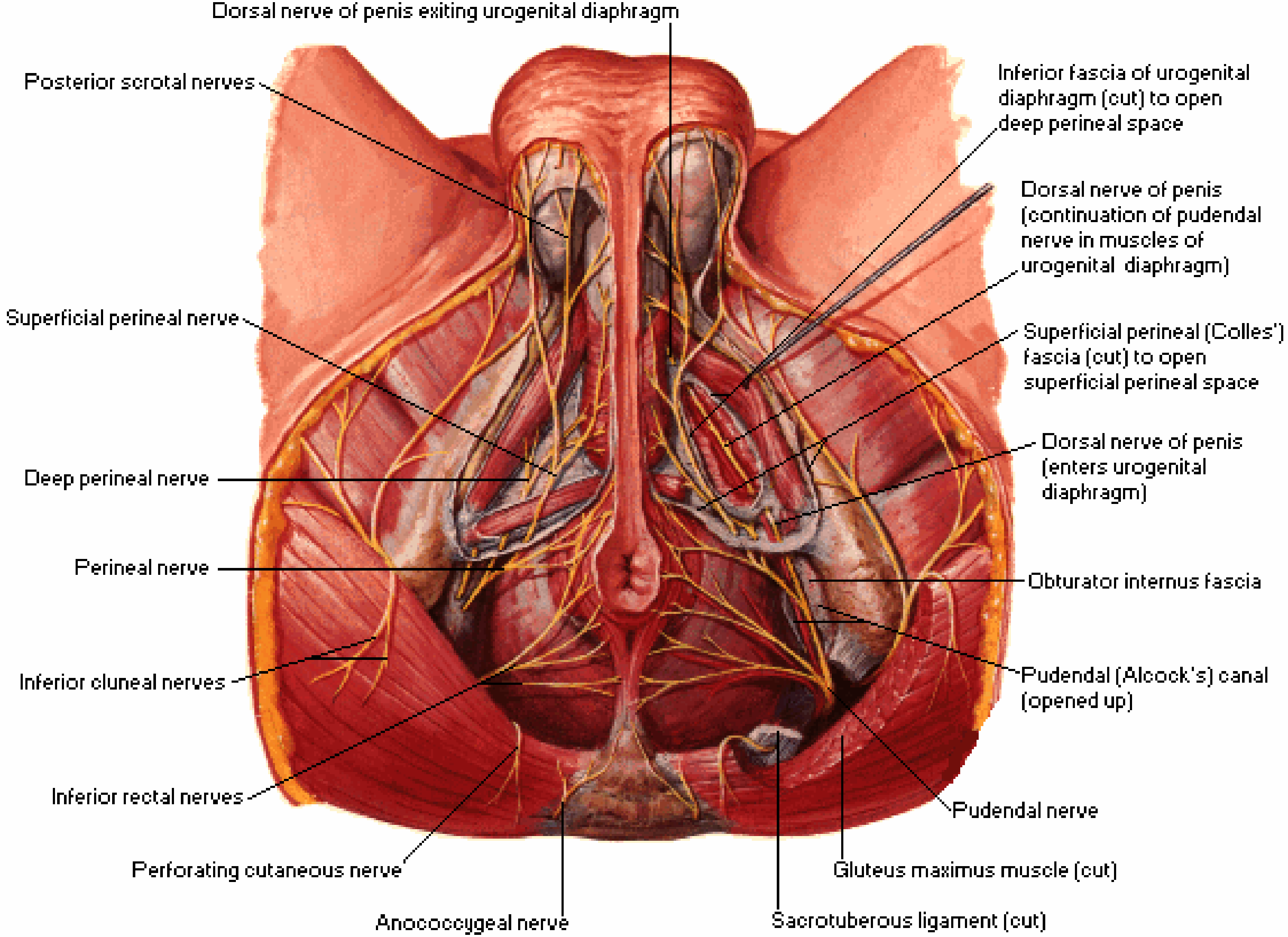


Male

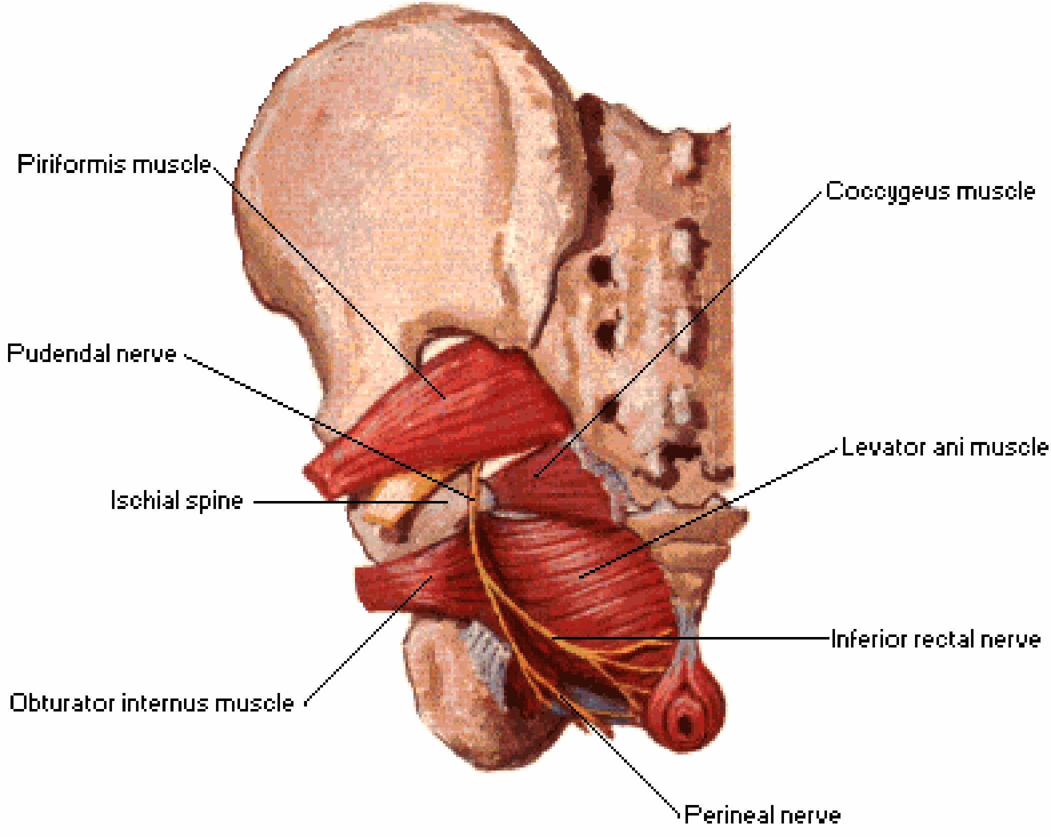


Anterior vagal trunk
Posterior vagal trunk
Celiac branch of posterior vagal trunk
Inferior phrenic arteries and plexuses
Left gastric artery and plexus
Celiac ganglia, plexus and trunk
Left aorticorenal ganglion
Superior mesenteric ganglion
Superior mesenteric artery and plexus
Intermesenteric (aortic) plexus
Inferior mesenteric ganglion, artery and plexus
Ureter and ureteric plexus
Superior hypogastric plexus
Superior rectal artery and plexus
Hypogastric nerves
Nerve from pelvic plexus to sigmoid and descending colon (parasympathetic)
Pelvic splanchnic nerves (nervi erigentes) (parasympathetic)
Sacral splanchnic nerves (sympathetic)
Obturator nerve and artery
Inferior hypogastric (pelvic) plexus
Ductus deferens and plexus
Vesical plexus
Greater cavernous nerve
Lesser cavernous nerve
Posterior scrotal nerves
White and gray rami communicantes
10th thoracic nerve (ventral ramus)
Diaphragm
Greater thoracic splanchnic nerve
Lesser thoracic splanchnic nerve
Least thoracic splanchnic nerve
Left renal artery and plexus
1st lumbar nerve (ventral ramus)
Gray ramus communicans
White ramus communicans
1st, 2nd, 3rd lumbar splanchnic nerves
Sympathetic trunk and ganglia
5th lumbar nerve (ventral ramus)
5th lumbar splanchnic nerve
Lumbosacral trunk
1st sacral nerve (ventral ramus)
Sacral plexus
Piriformis muscle
Gluteus maximus muscle and sacrotuberous ligament
Coccygeus muscle and sacrospinous ligament
Rectal plexus
Pudendal nerve
Levator ani muscle
Inferior rectal nerve
Perineal nerve
Dorsal nerve of penis
Prostatic plexus

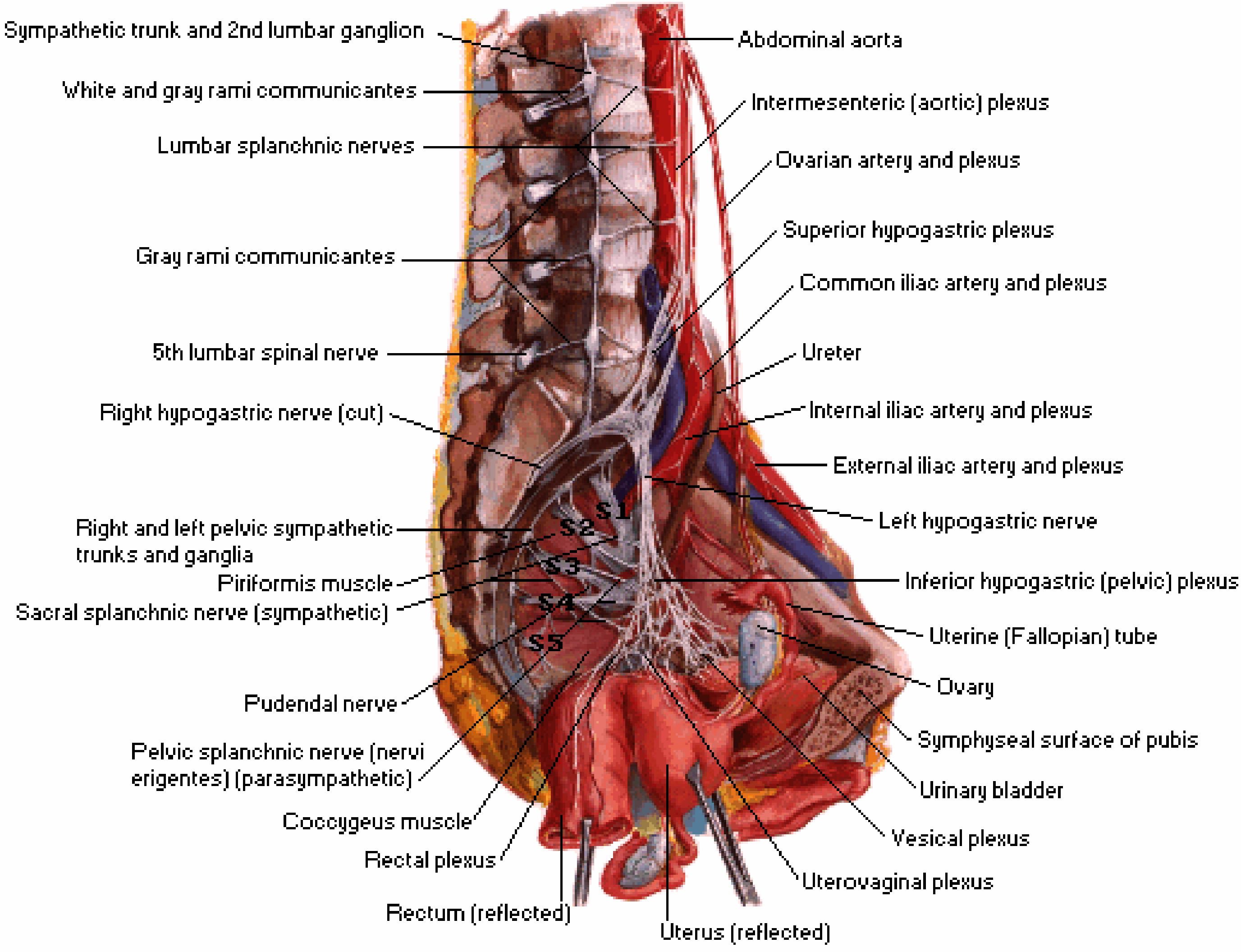
Male - Perineal View



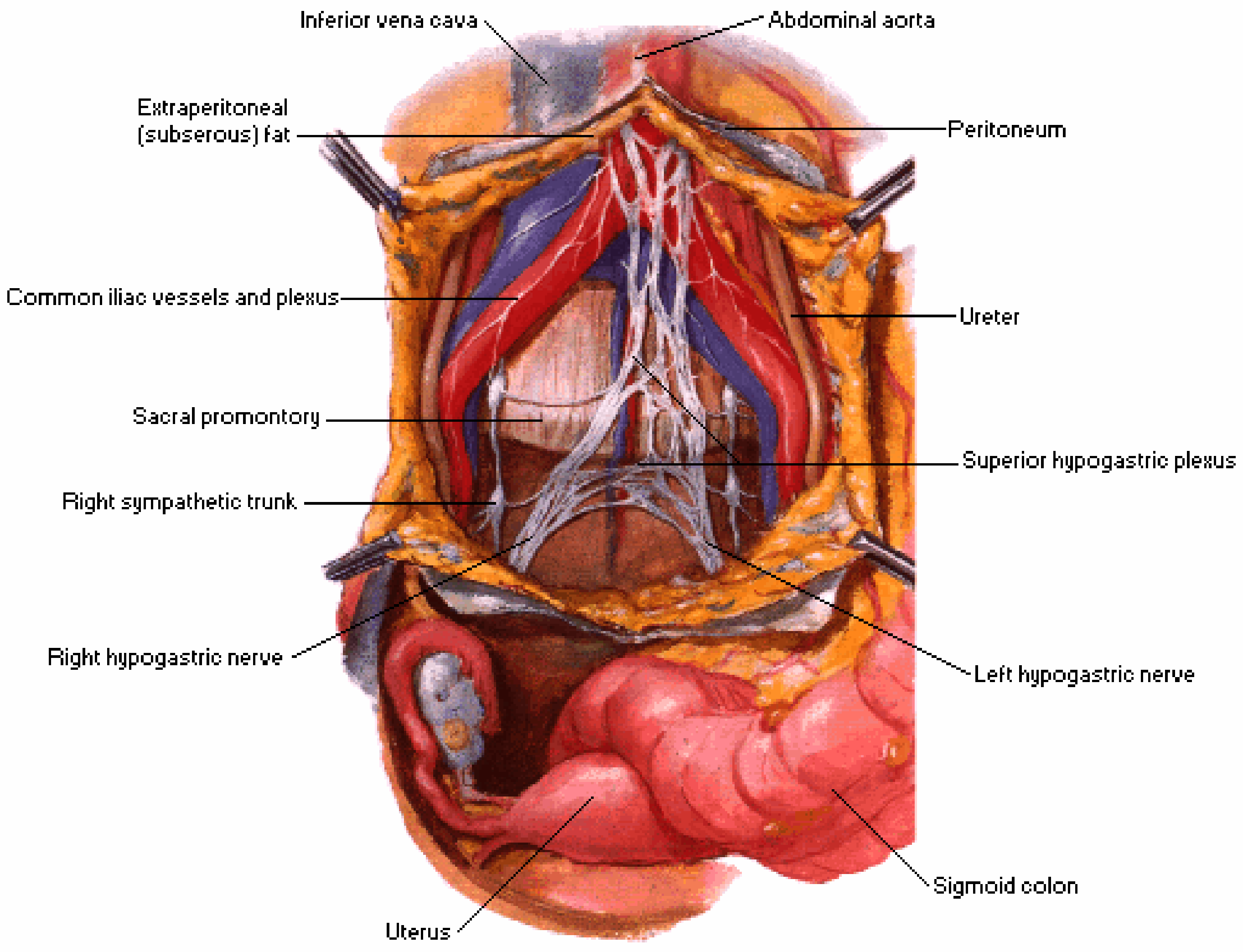
Male - Inferior View



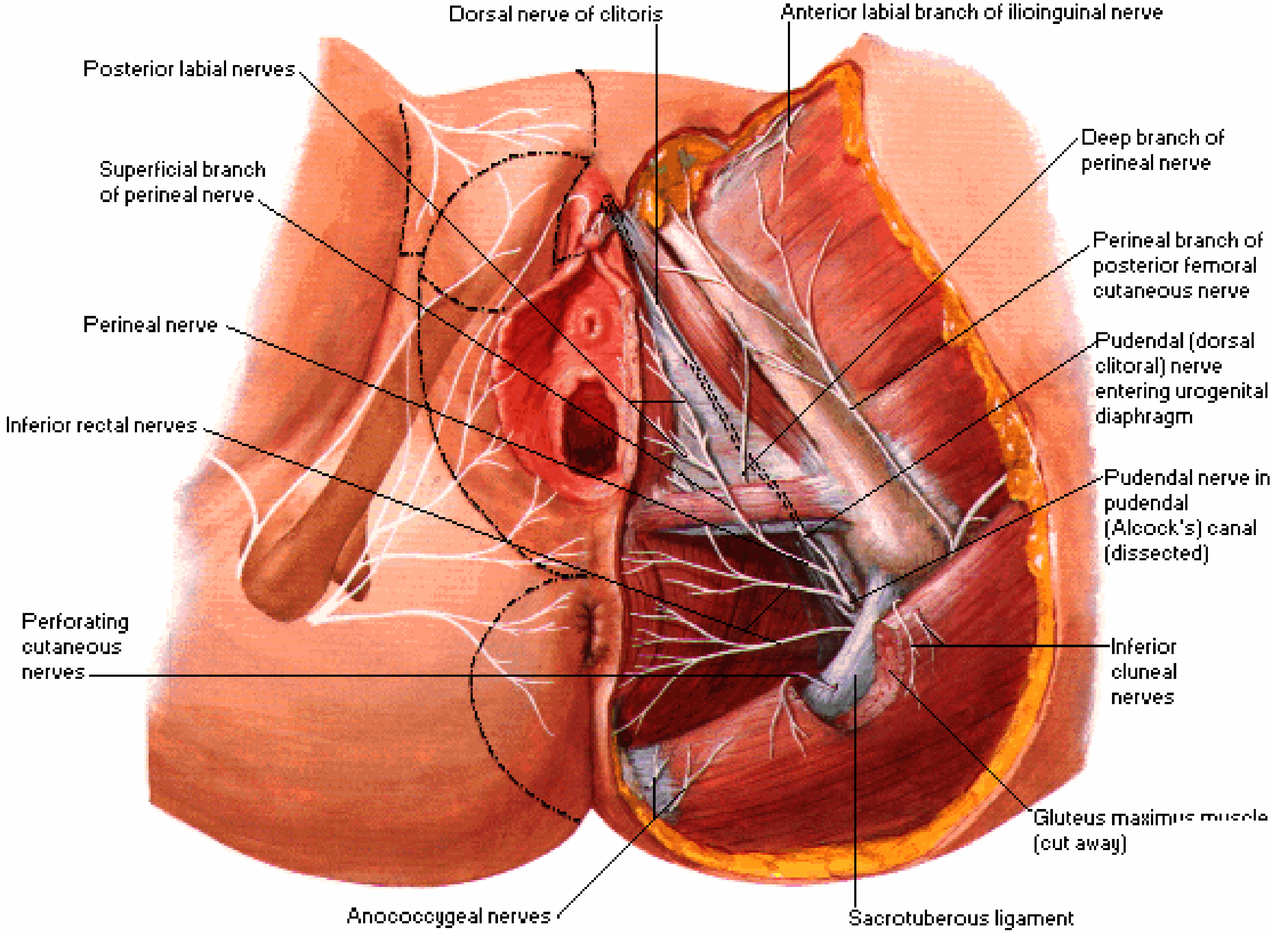
Female - Sagittal Section



Female - Superior View

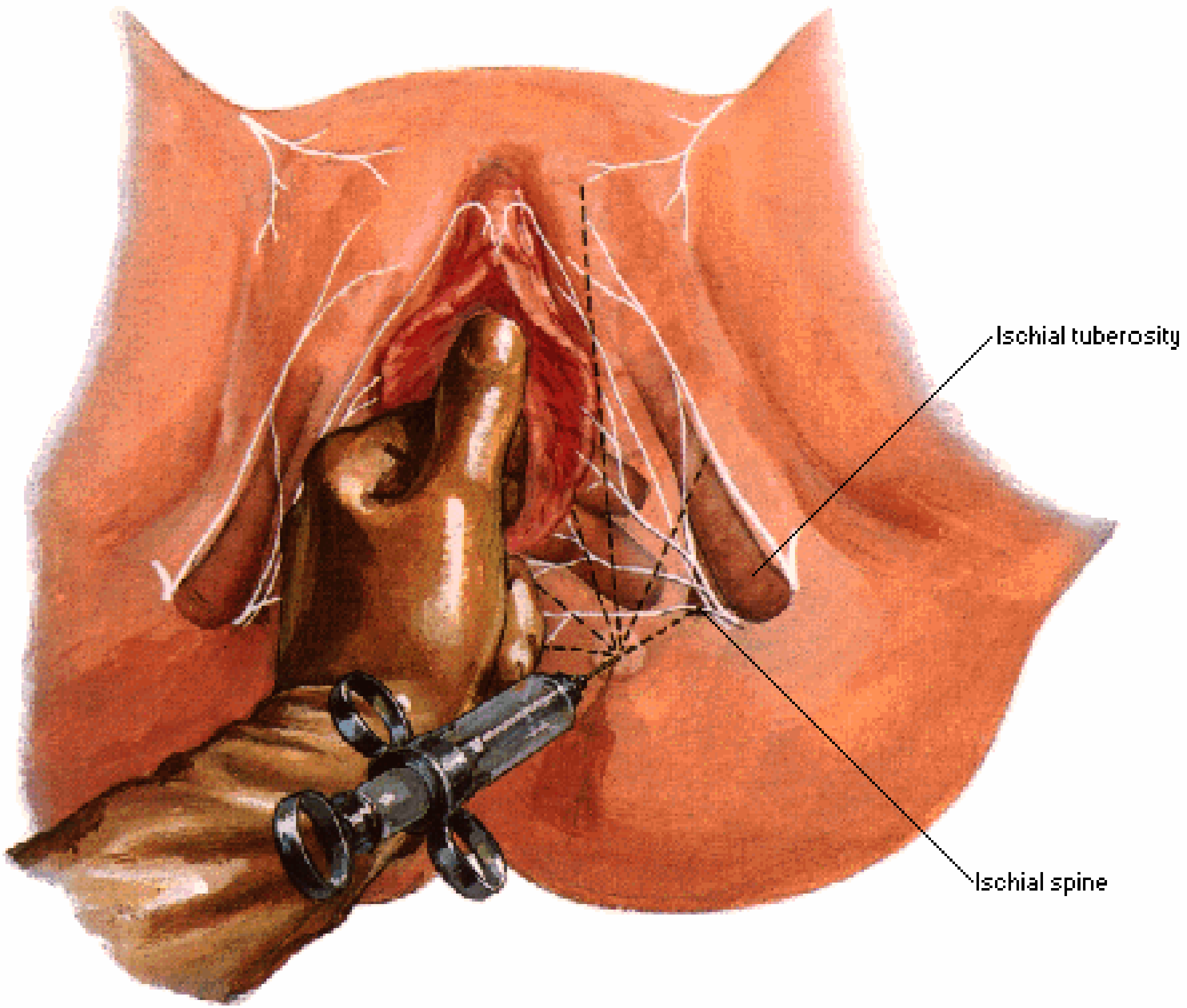


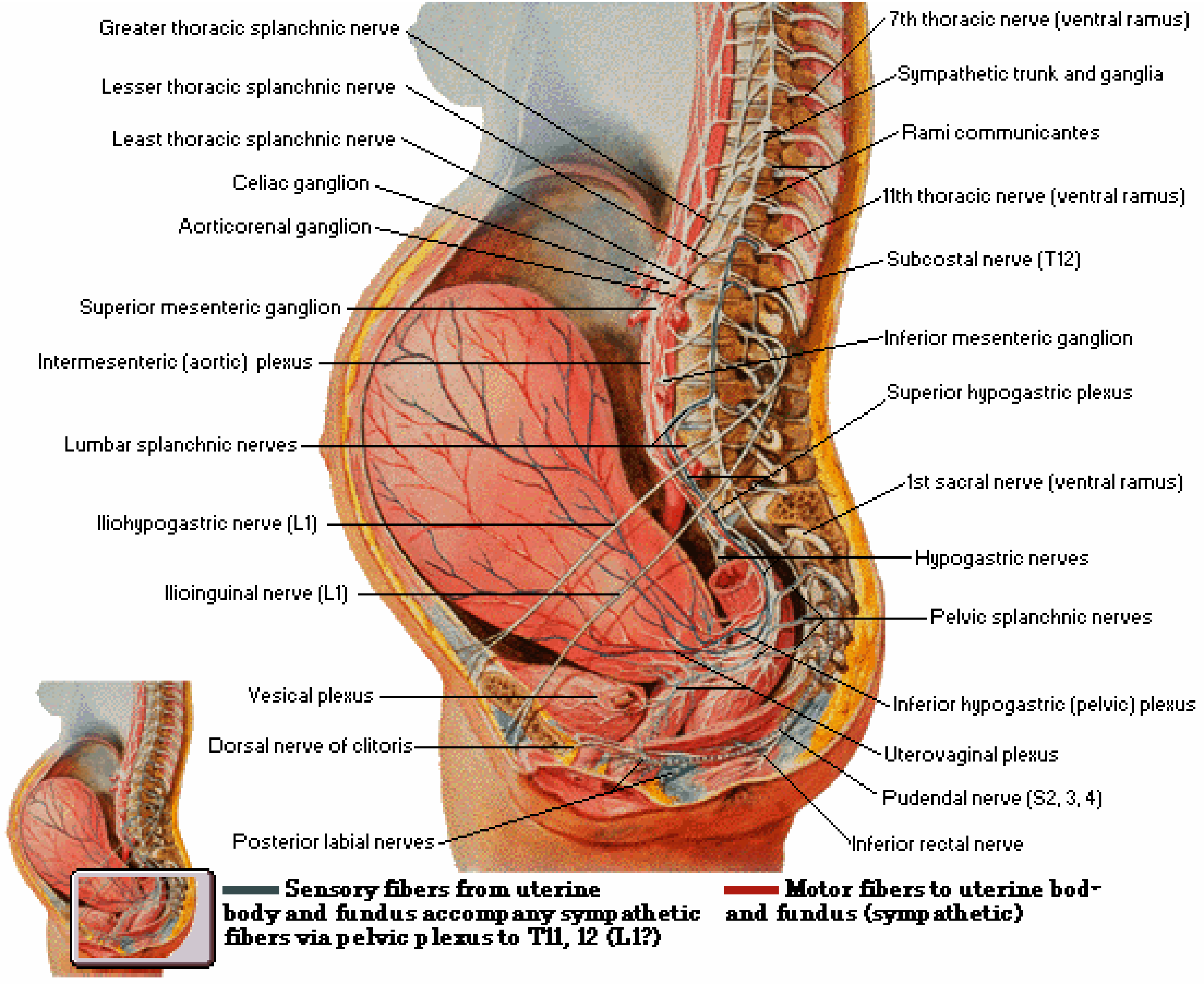
Female



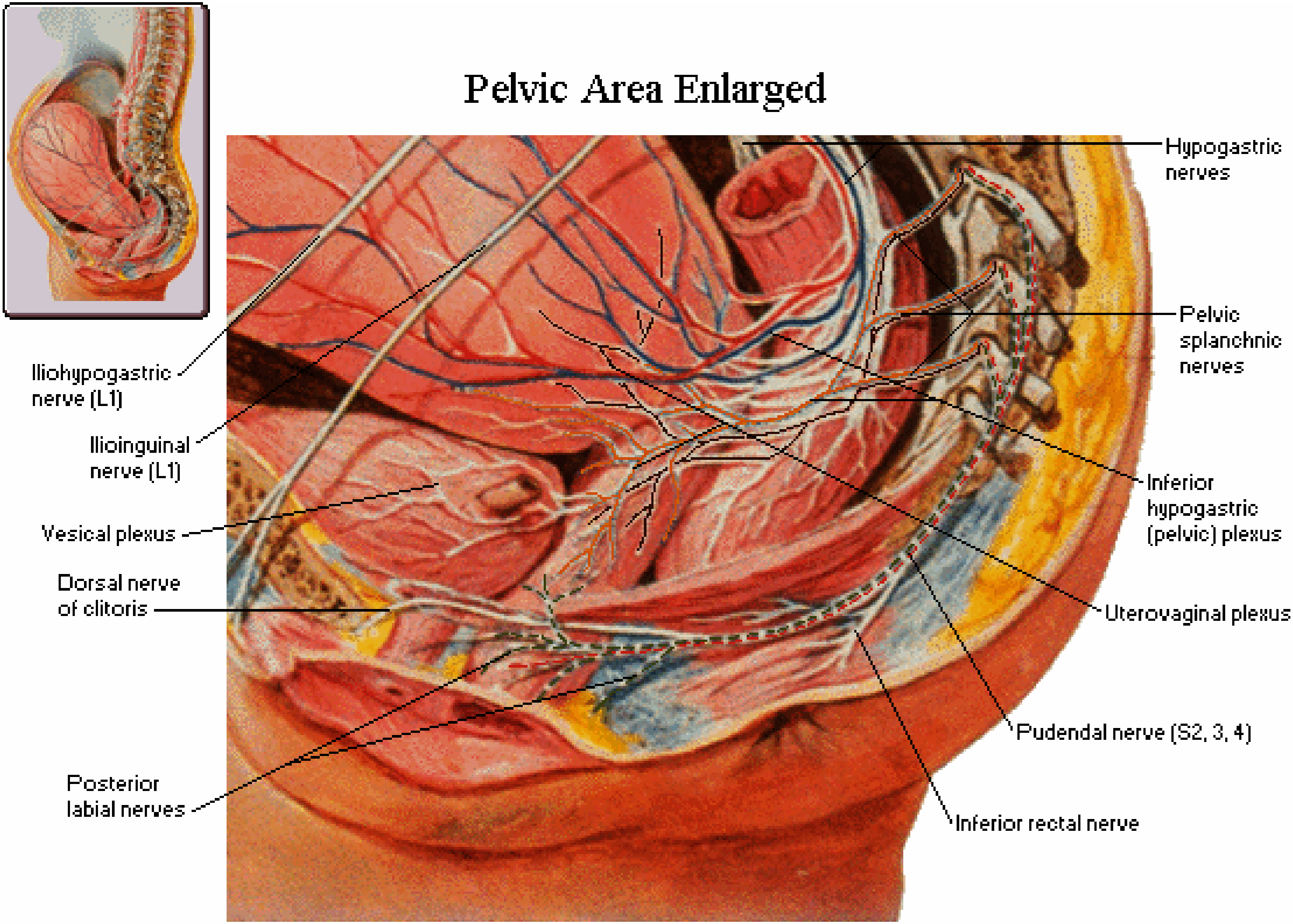
Dorsal nerve of clitoris
Anterior labial branch of ilioinguinal nerve
Posterior labial nerves
Superficial branch of perineal nerve
Deep branch of perineal nerve
Perineal branch of posterior femoral cutaneous nerve
Perineal nerve
Pudendal (dorsal clitoral) nerve entering urogenital diaphragm
Inferior rectal nerves
Pudendal nerve in pudendal (Alcock's) canal (dissected)
Perforating cutaneous nerves
Inferior cluneal nerves
Gluteus maximus muscle (cut away)
Anococcygeal nerves
Sacrotuberous ligament

Primarily Pudendal Nerve




Greater thoracic splanchnic nerve
Lesser thoracic splanchnic nerve
Least thoracic splanchnic nerve
Celiac ganglion
Aorticorenal ganglion
Superior mesenteric ganglion
Intermesenteric (aortic) plexus
Lumbar splanchnic nerves
Iliohypogastric nerve (L1)
Ilioinguinal nerve (L1)
Vesical plexus
Dorsal nerve of clitoris
Posterior labial nerves
7th thoracic nerve (ventral ramus)
Sympathetic trunk and ganglia
Rami communicantes
11th thoracic nerve (ventral ramus)
Subcostal nerve (T12)
Inferior mesenteric ganglion
Superior hypogastric plexus
1st sacral nerve (ventral ramus)
Hypogastric nerves
Pelvic splanchnic nerves
Inferior hypogastric (pelvic) plexus
Uterovaginal plexus
Pudendal nerve (S2, 3, 4)
Inferior rectal nerve
Sensory fibers from uterine body and fundus accompany sympathetic fibers via pelvic plexus to T11, 12 (L1?)
Motor fibers to uterine body and fundus (sympathetic)

Pelvic Area Enlarged



Sensory fibers from uterine body and fundus accompany sympathetic fibers via pelvic plexus to T11, 12 (L1?)

Motor fibers to uterine body and fundus (sympathetic)

Sensory fibers from cervix and upper vagina accompany pelvic splanchnic nerves (parasympathetic) to S2, 3, 4

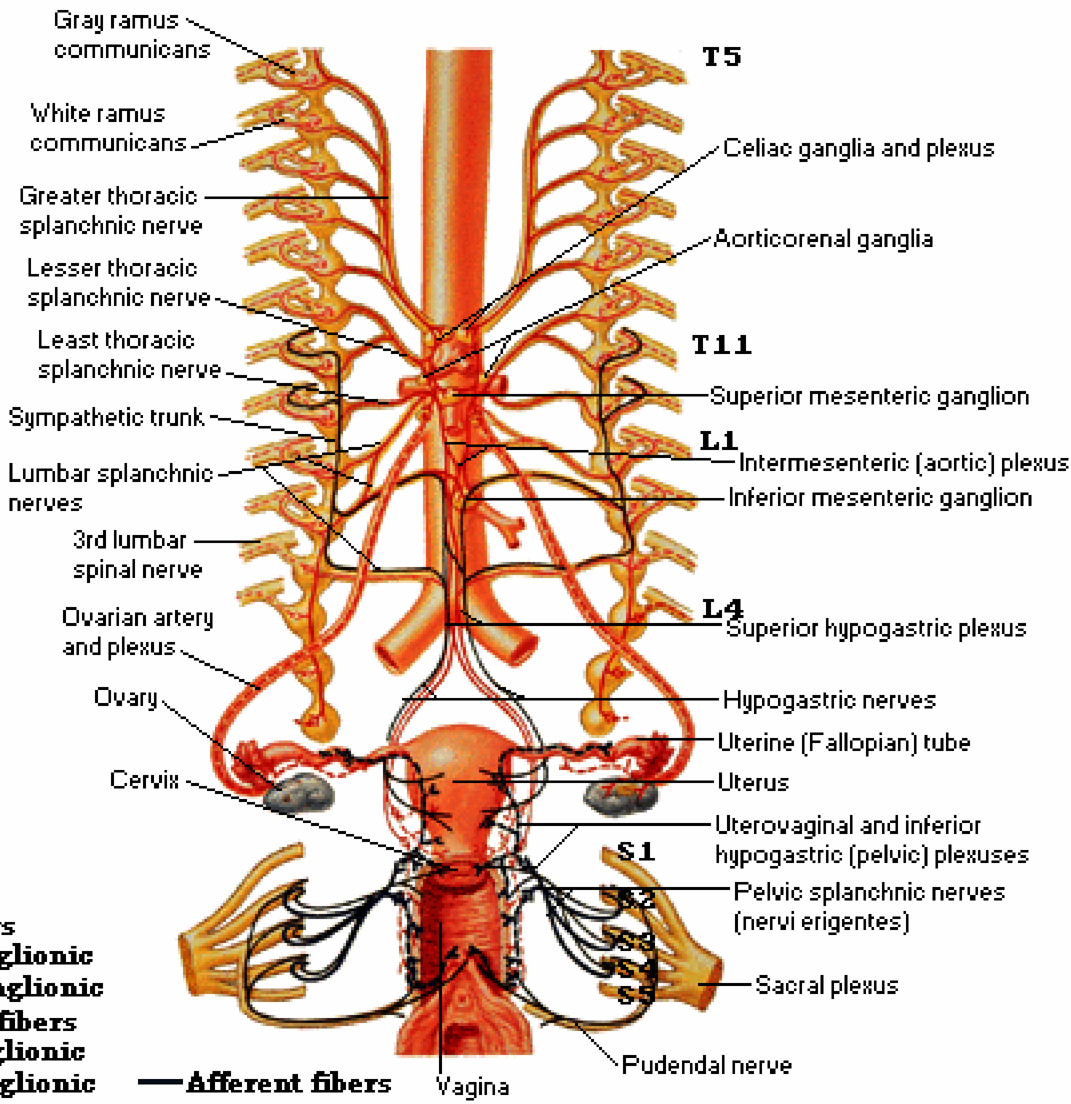
Motor fibers to lower uterine segment, cervix and upper vagina (parasympathetic)

Sensory fibers from lower vagina and perineum accompany somatic fibers via pudendal nerve to S2, 3, 4

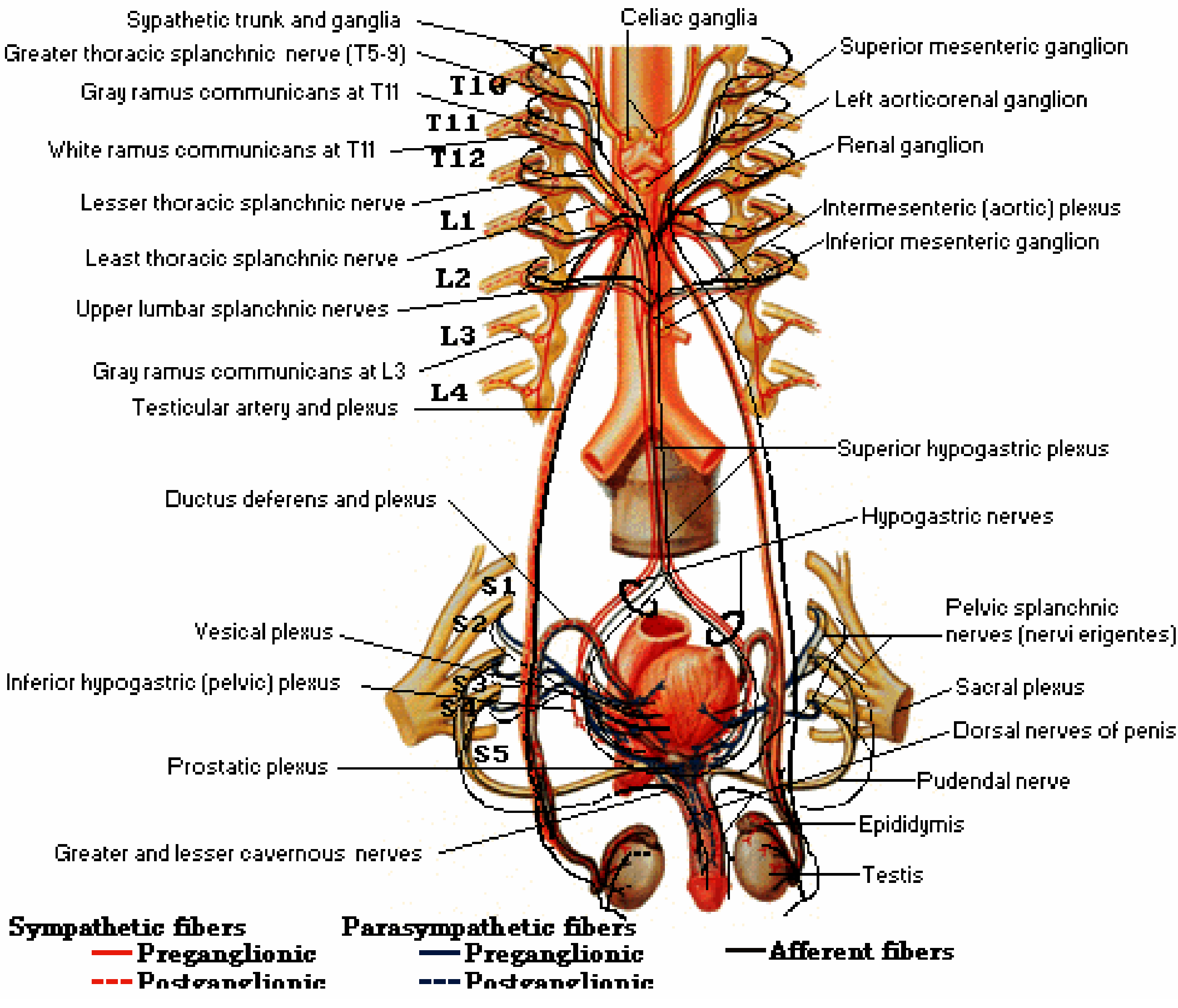
Motor fibers to lower vagina and perineum via pudendal nerve (somatic)

Schema

Note: pain of uterine contractions goes via uterovaginal and pelvic plexuses, hypogastric nerves, superior hypogastric plexus, lower aortic plexus, lower lumbar splanchnic nerves, sympathetic trunk from L4 to L5 to spinal nerves T11, 12. Pain from cervical dilatation and upper vagina via pelvic splanchnic nerves to S2, 3, 4. Afferents from lower vagina and perineum via pudendal nerves to S2, 3, 4

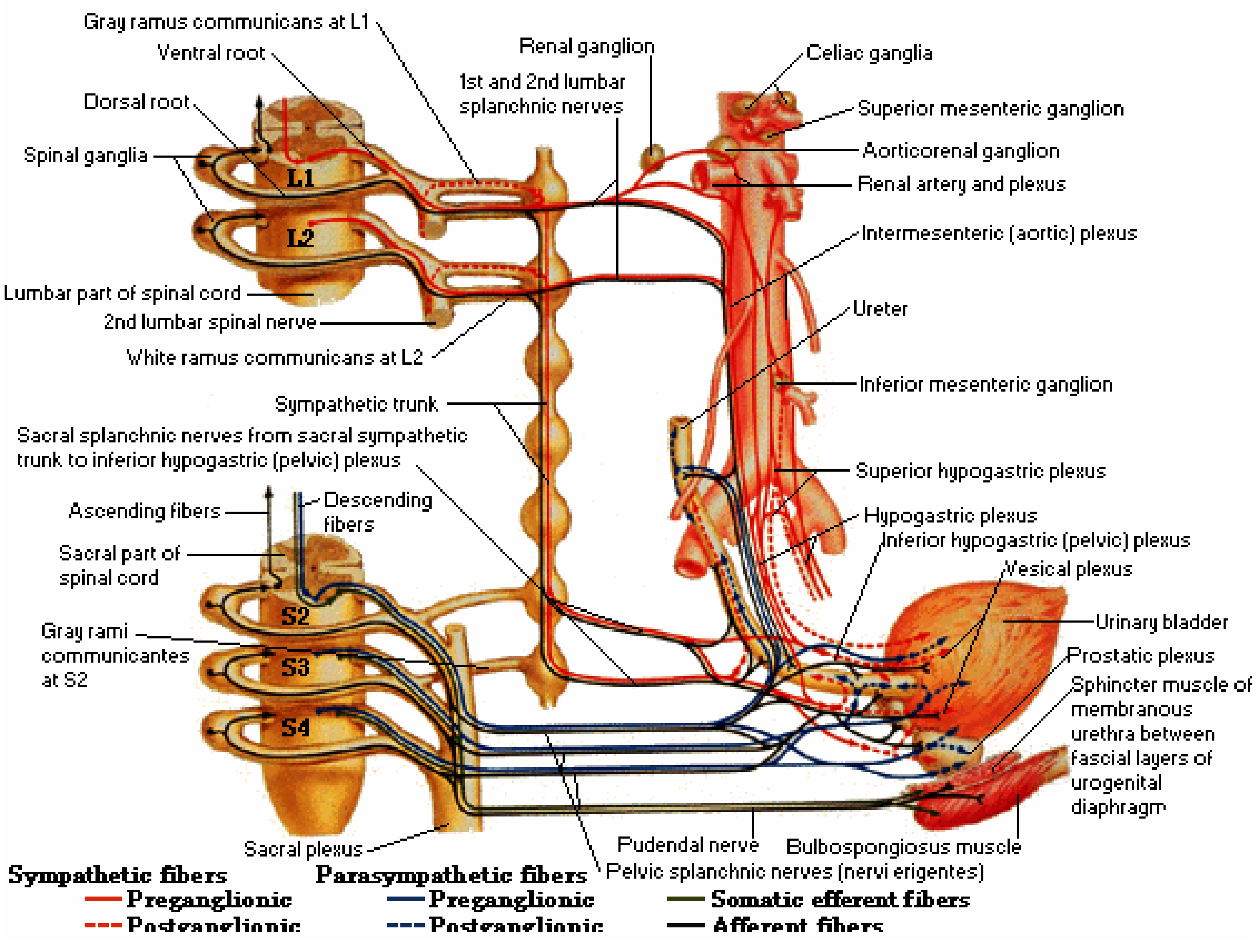


Schema



Sypathetic trunk and ganglia
Greater thoracic splanchnic nerve (T5-9)
Gray ramus communicans at T11
White ramus communicans at T11
Lesser thoracic splanchnic nerve
Least thoracic splanchnic nerve
Upper lumbar splanchnic nerves
Gray ramus communicans at L3
Testicular artery and plexus
Ductus deferens and plexus
Vesical plexus
Inferior hypogastric (pelvic) plexus
Prostatic plexus
Greater and lesser cavernous nerves
T10
T11
T12
L1
L2
L3
L4
S1
S2
S3
S4
S5
Celiac ganglia
Superior mesenteric ganglion
Left aorticorenal ganglion
Renal ganglion
Intermesenteric (aortic) plexus
Inferior mesenteric ganglion
Superior hypogastric plexus
Hypogastric nerves
Pelvic splanchnic nerves (nervi erigentes)
Sacral plexus
Dorsal nerves of penis
Pudendal nerve
Epididymis
Testis
Sympathetic fibers
Preganglionic
Postganglionic
Parasympathetic fibers
Preganglionic
Postganglionic
Afferent fibers

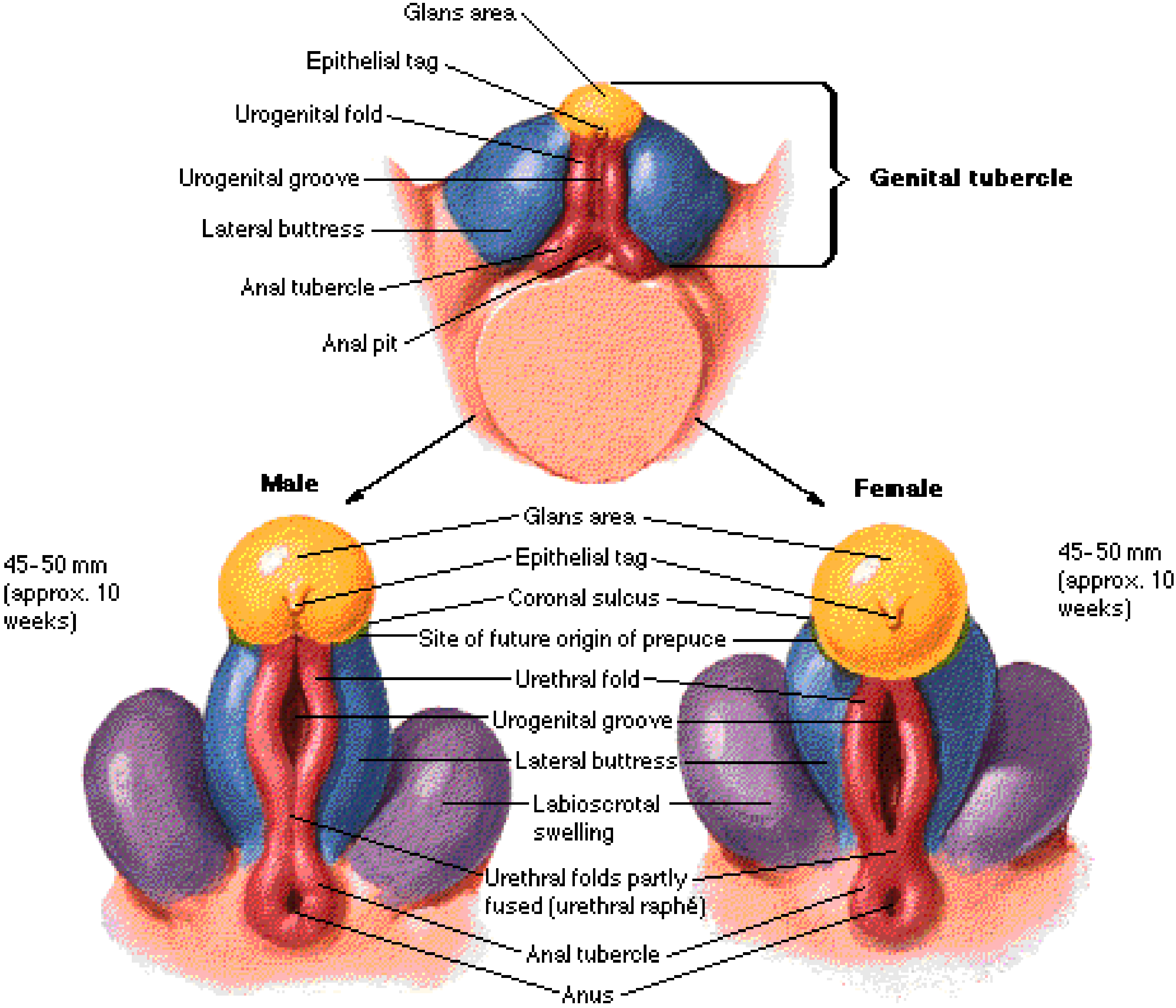
Schema



Gray ramus communicans at L1
Ventral root
Dorsal root
Spinal ganglia
L1
L2
Lumbar part of spinal cord
2nd lumbar spinal nerve
White ramus communicans at L2
Renal ganglion
1st and 2nd lumbar splanchnic nerves
Celiac ganglia
Superior mesenteric ganglion
Aorticorenal ganglion
Renal artery and plexus
Intermesenteric (aortic) plexus
Ureter
Inferior mesenteric ganglion
Sympathetic trunk
Sacral splanchnic nerves from sacral sympathetic trunk to inferior hypogastric (pelvic) plexus
Superior hypogastric plexus
Ascending fibers
Descending fibers
Hypogastric plexus
Inferior hypogastric (pelvic) plexus
Vesical plexus
Sacral part of spinal cord
Urinary bladder
S2
Gray rami communicantes at S2
S3
Prostatic plexus
S4
Sphincter muscle of membranous urethra between fascial layers of urogenital diaphragm
Sacral plexus
Pudendal nerve
Bulbospongiosus muscle
Pelvic splanchnic nerves (nervi erigentes)
Sympathetic fibers
Preganglionic
Postganglionic
Parasympathetic fibers
Preganglionic
Postganglionic
Somatic efferent fibers
Afferent fibers

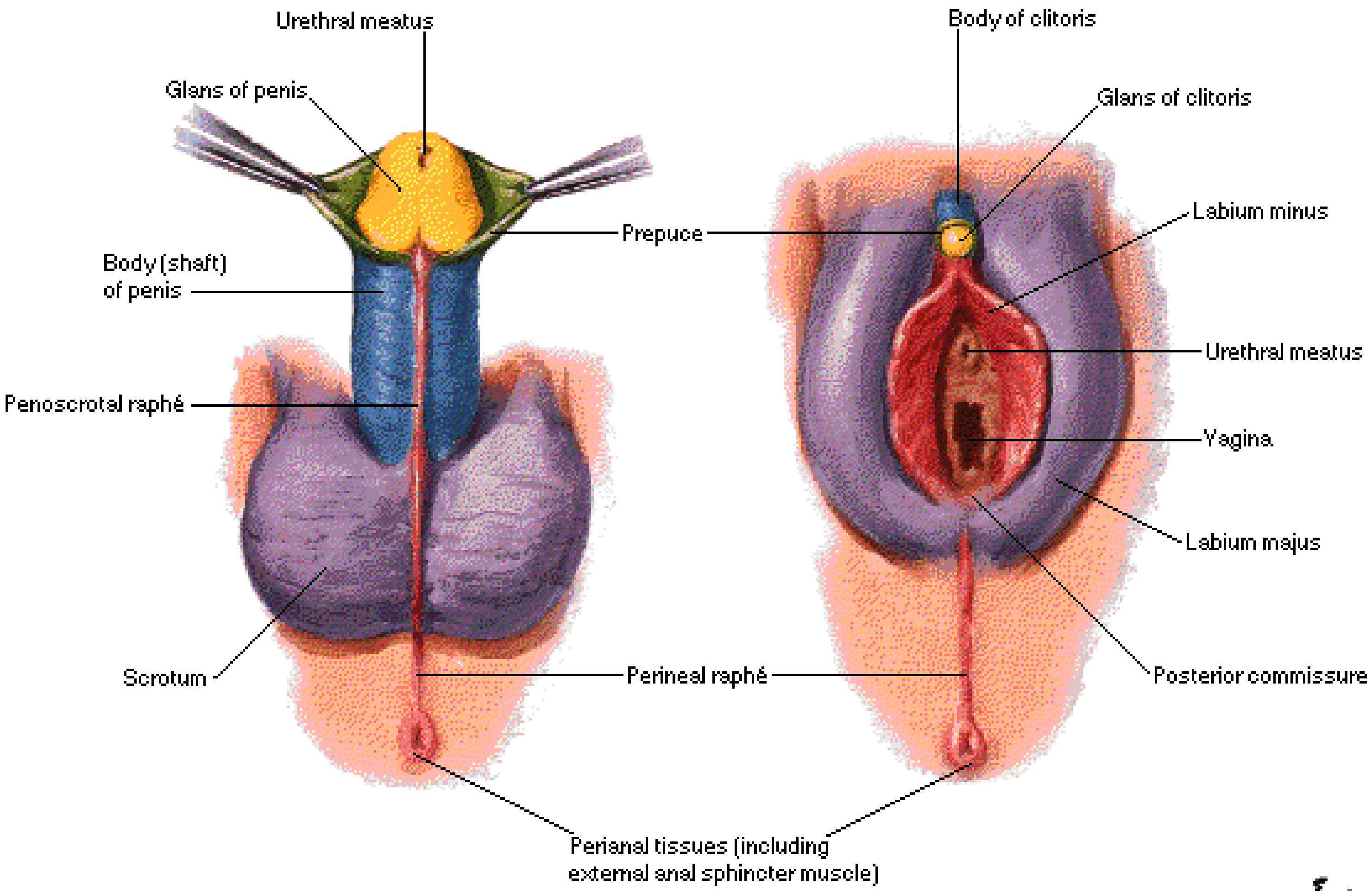
Homologues of External Genitalia

Undifferentiated Stage

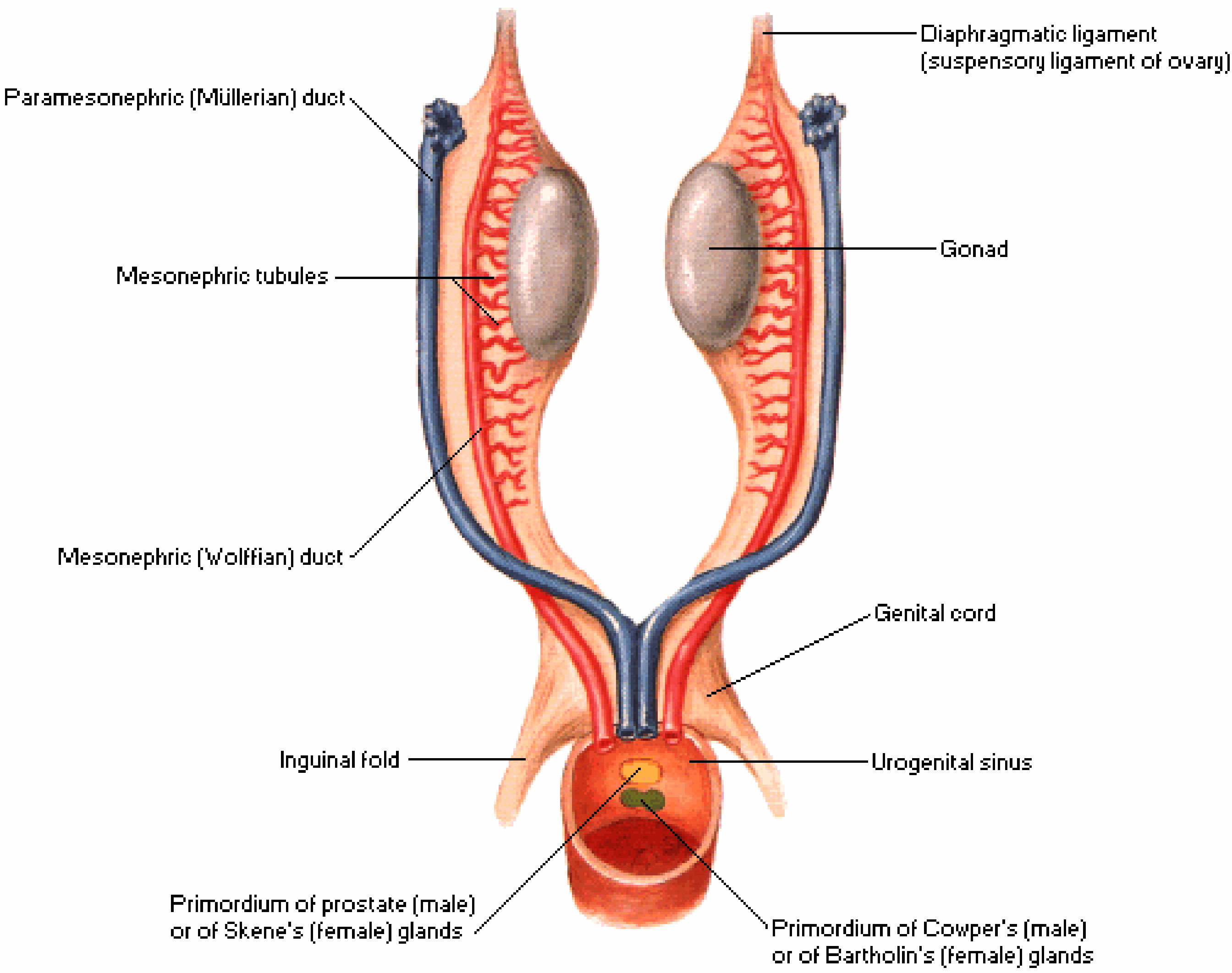


Homologues of External Genitalia

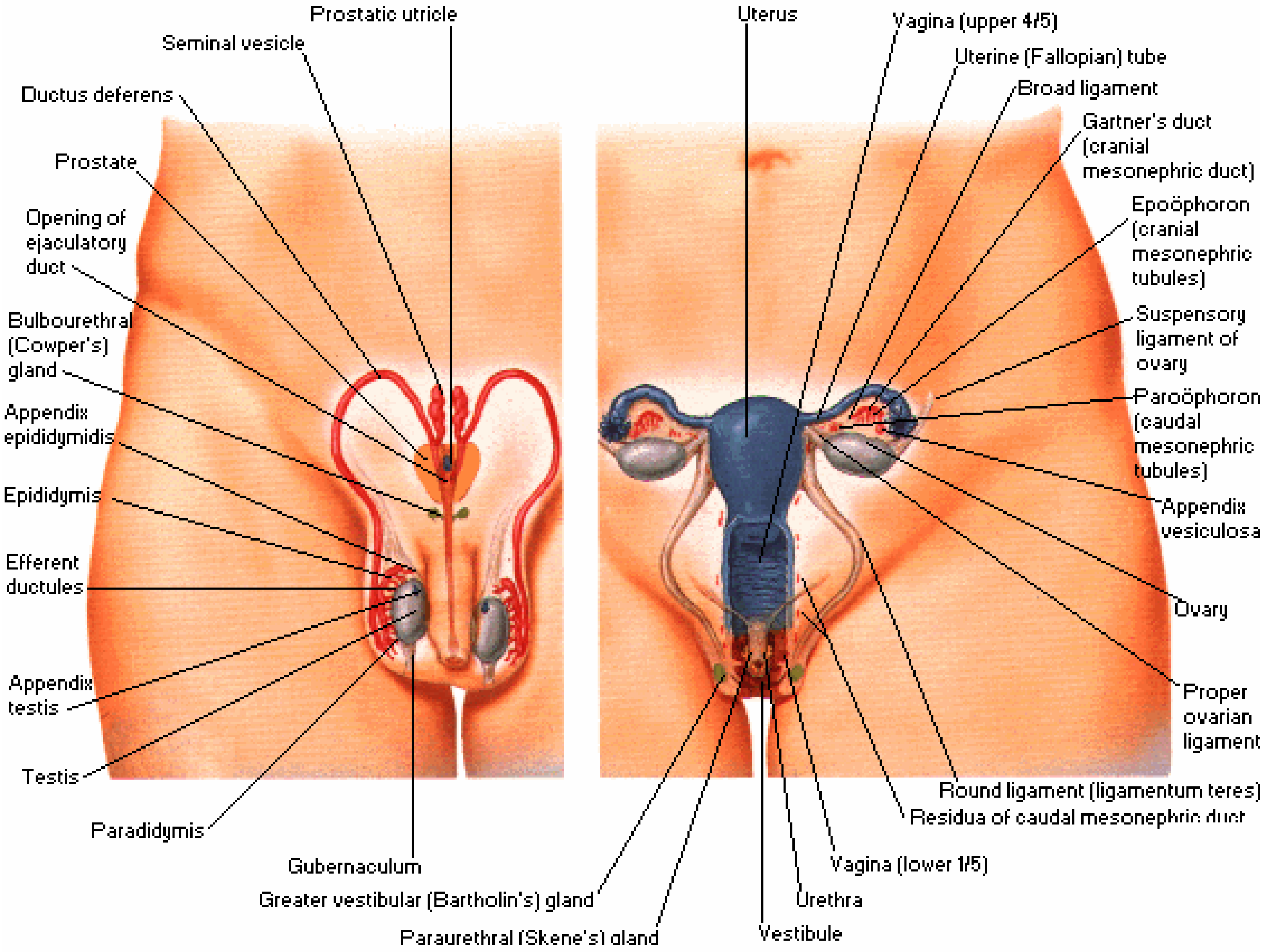
Fully Developed Male and Female

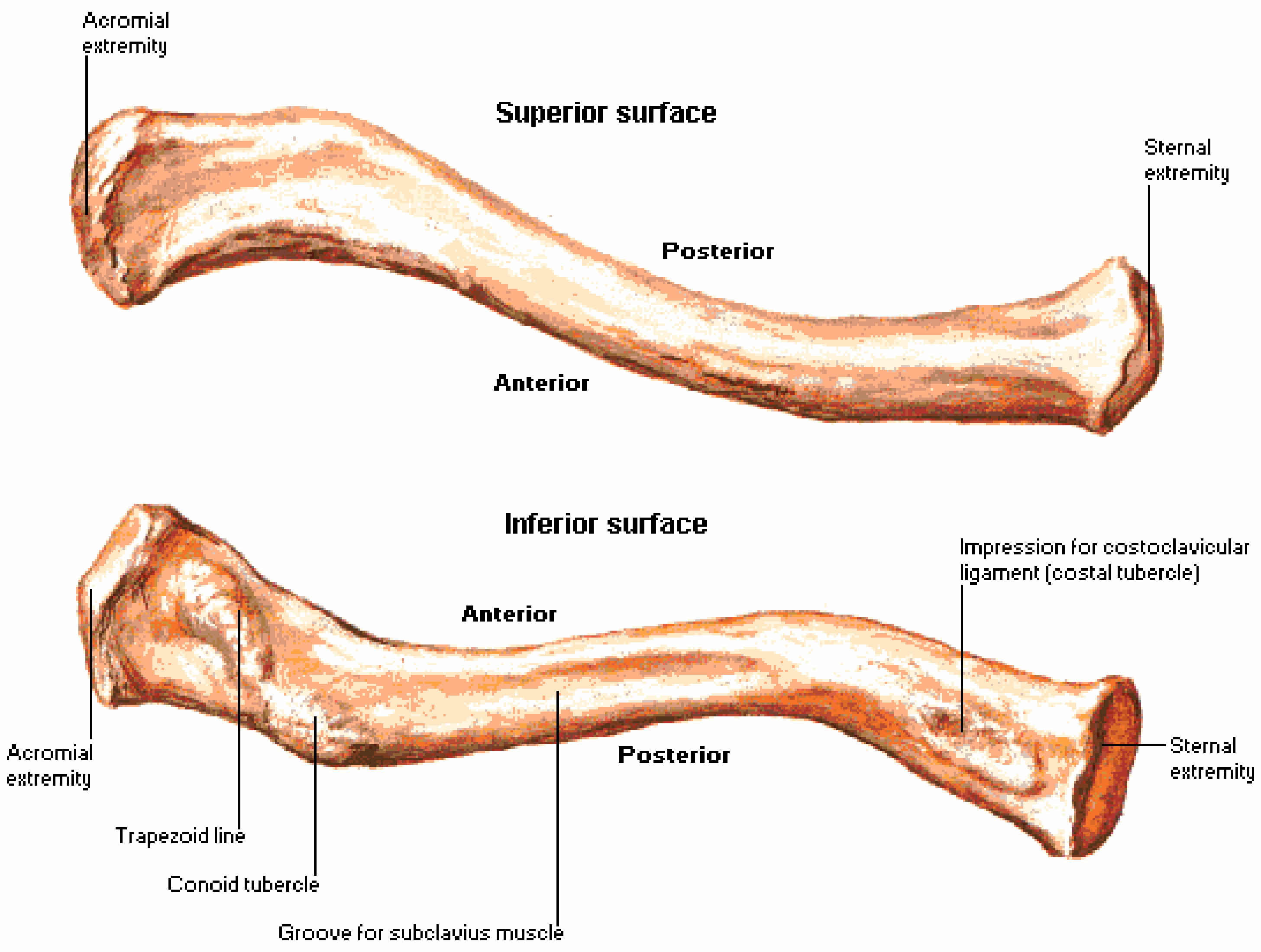


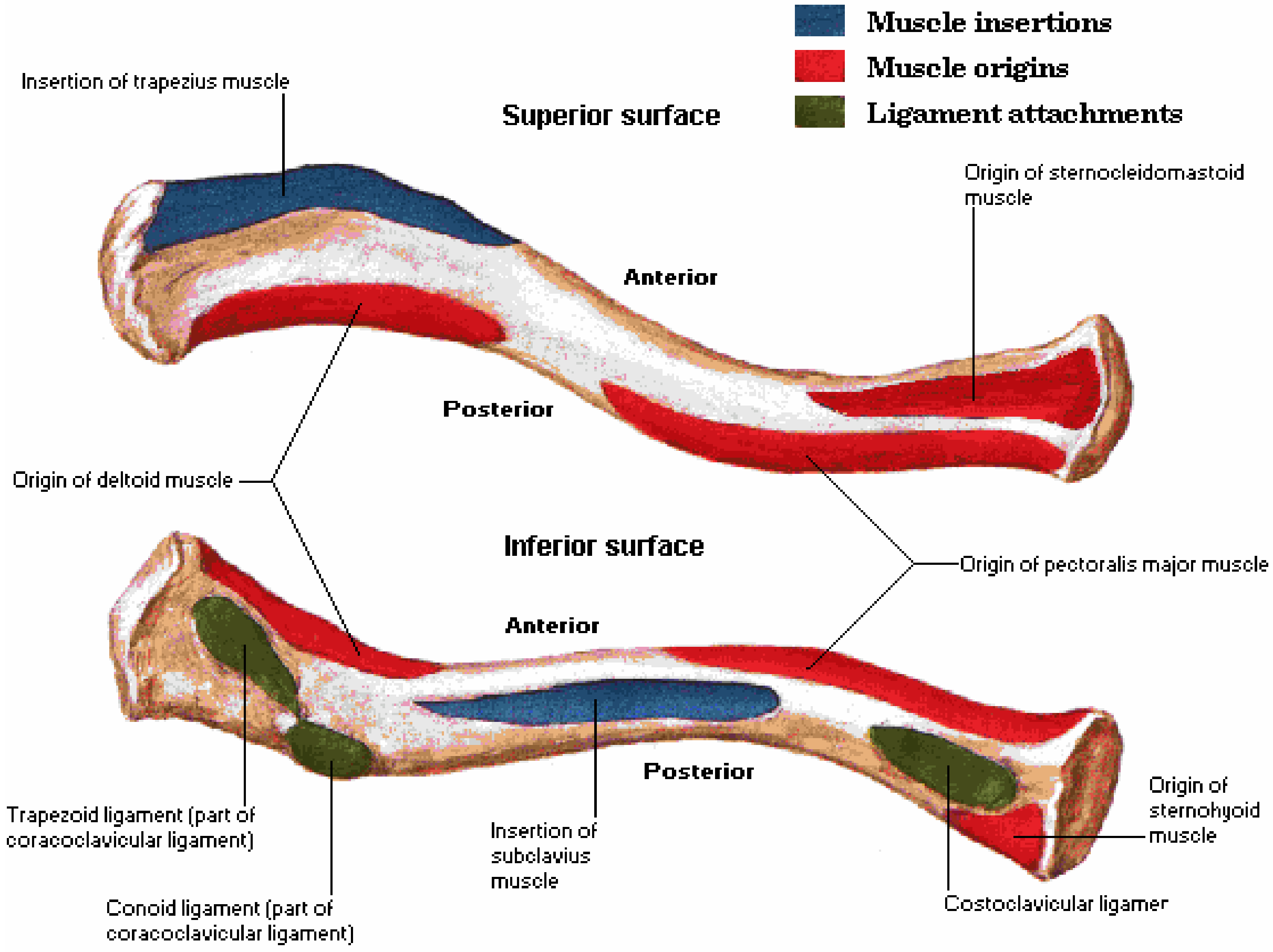
Undifferentiated Stage



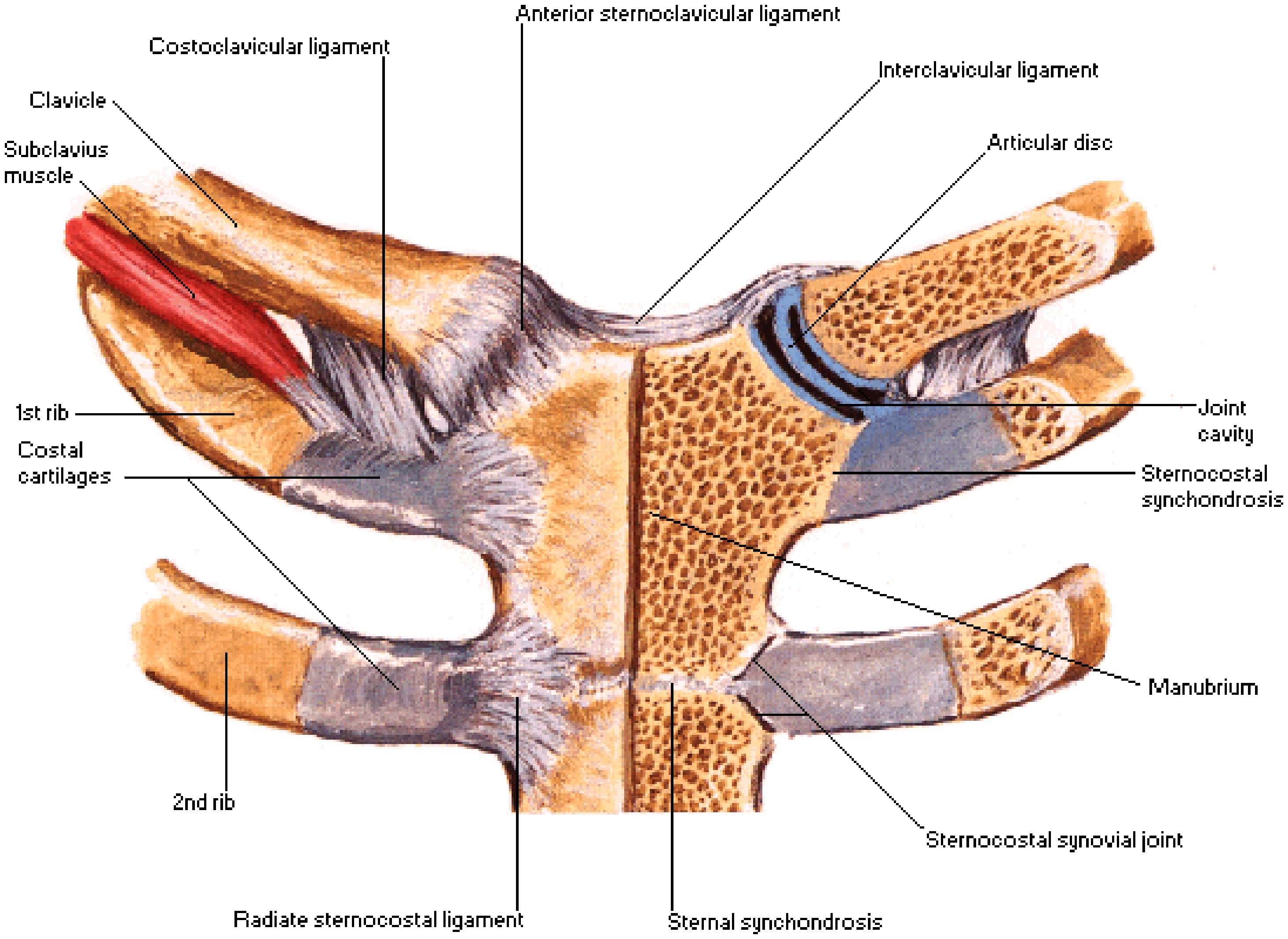
Fully Developed Male and Female




Acromial extremity
Superior surface
Sternal extremity
Posterior
Anterior
Inferior surface
Impression for costoclavicular ligament (costal tubercle)
Anterior
Acromial extremity
Posterior
Sternal extremity
Trapezoid line
Conoid tubercle
Groove for subclavius muscle



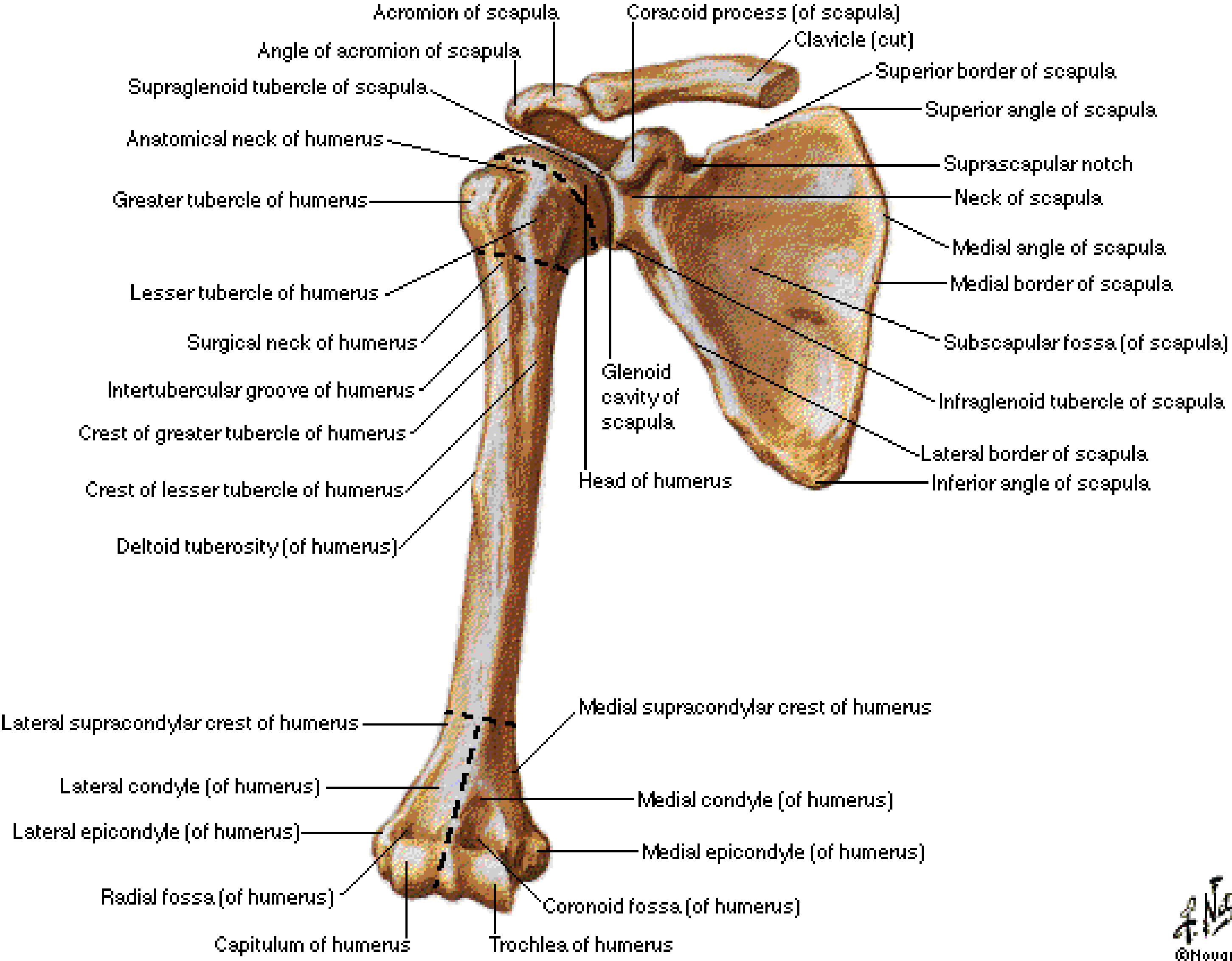
Muscle insertions
Muscle origins
Ligament attachments
Superior surface
Insertion of trapezius muscle
Anterior
Origin of sternocleidomastoid muscle
Posterior
Origin of deltoid muscle
Inferior surface
Origin of pectoralis major muscle
Anterior
Posterior
Trapezoid ligament (part of coracoclavicular ligament)
Insertion of subclavius muscle
Origin of sternohyoid muscle
Conoid ligament (part of coracoclavicular ligament)
Costoclavicular ligamer



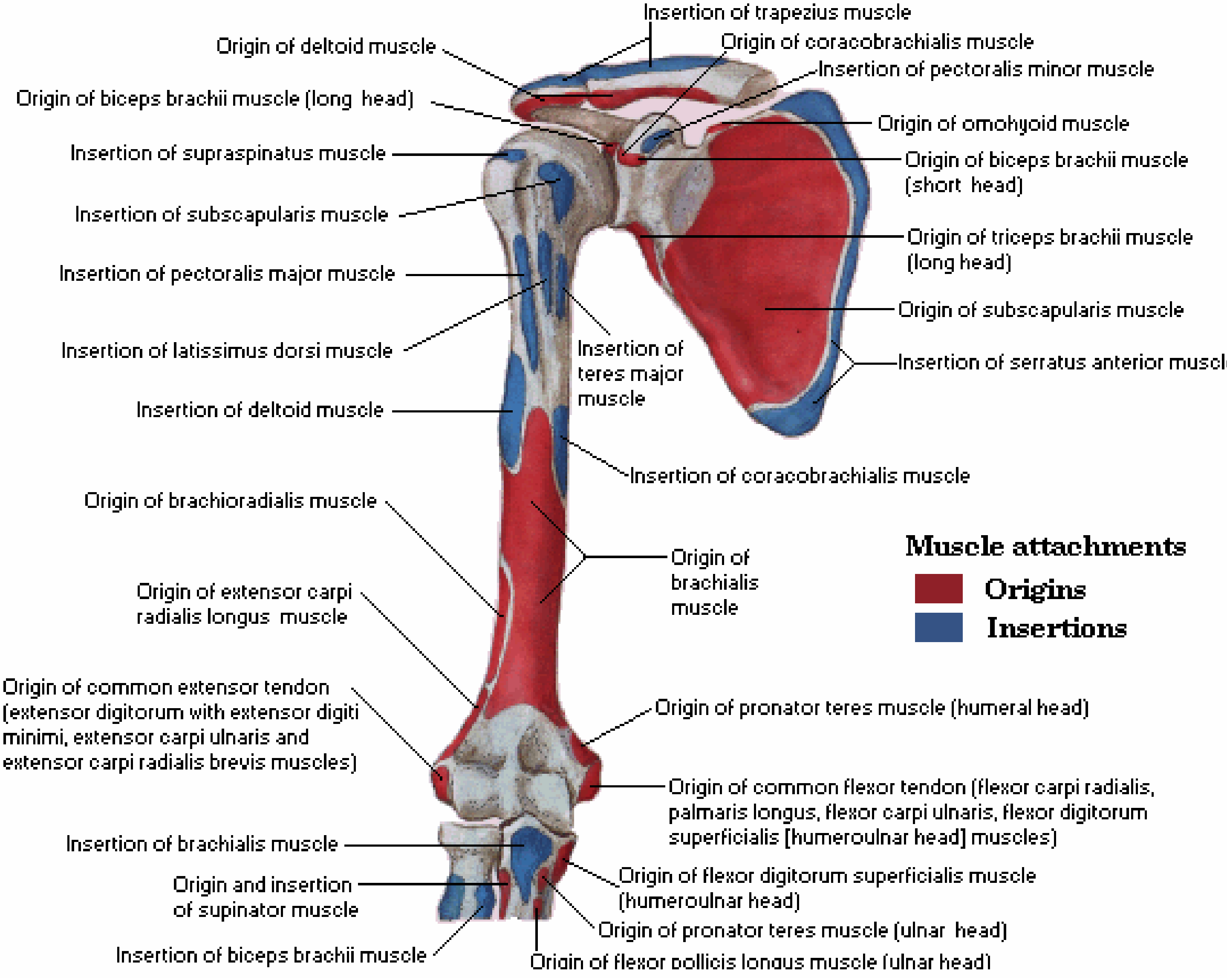
Anterior sternoclavicular ligament
Costoclavicular ligament
Interclavicular ligament
Clavicle
Articular disc
Subclavius muscle
1st rib
Joint cavity
Costal cartilages
Sternocostal synchondrosis
Manubrium
2nd rib
Sternocostal synovial joint
Radiate sternocostal ligament
Sternal synchondrosis

Humerus and Scapula

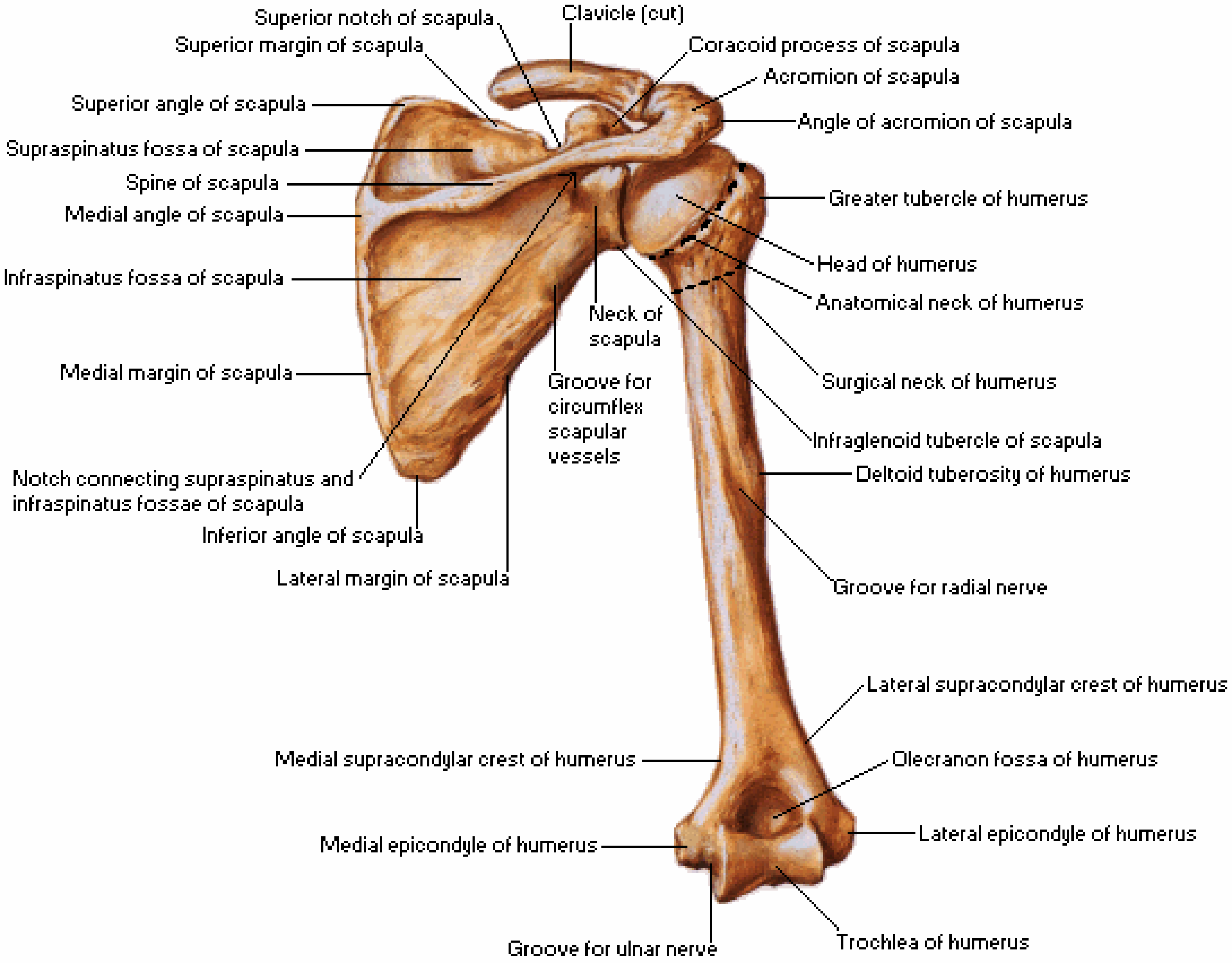
Anterior View - Features



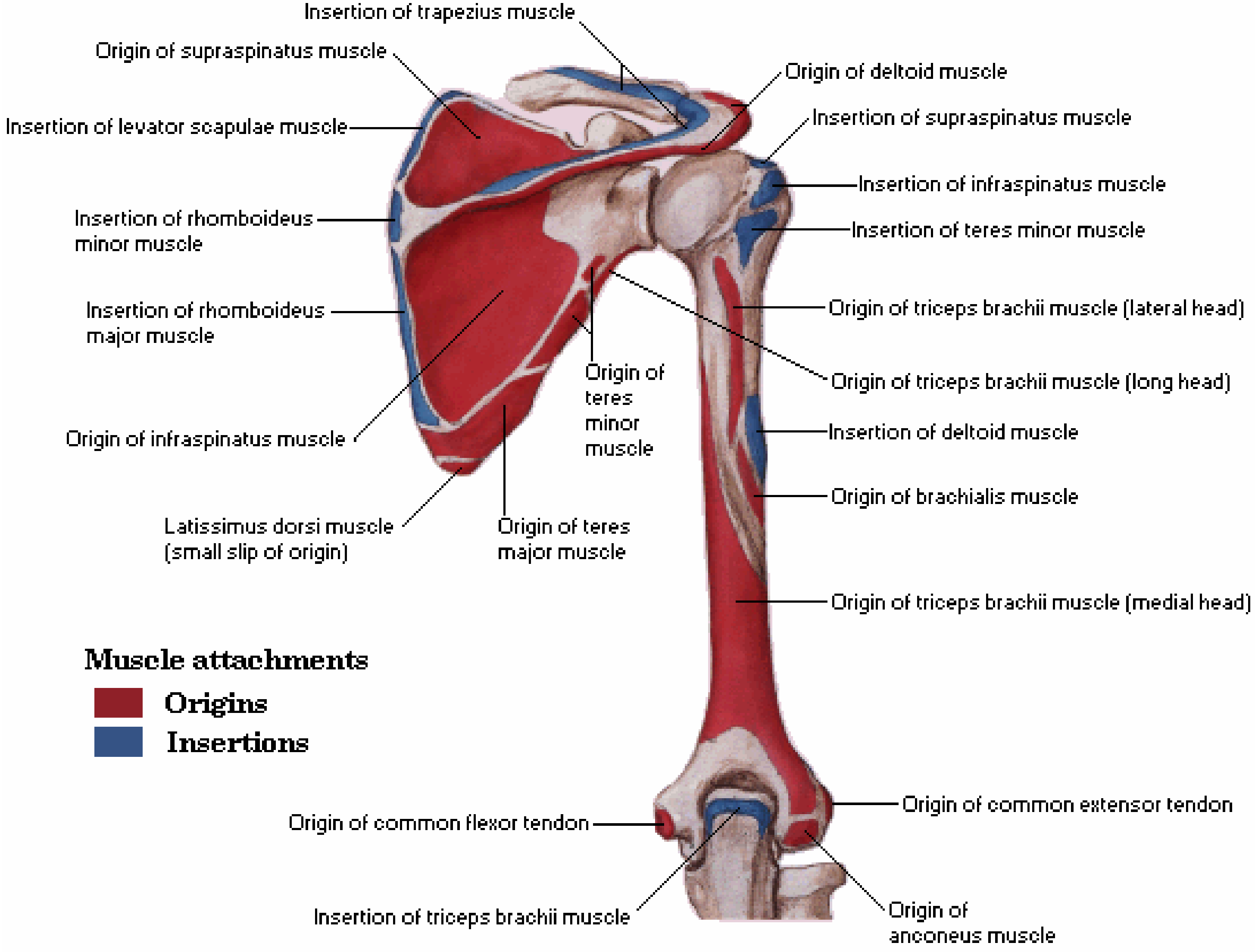
Anterior View - Muscle Attachments



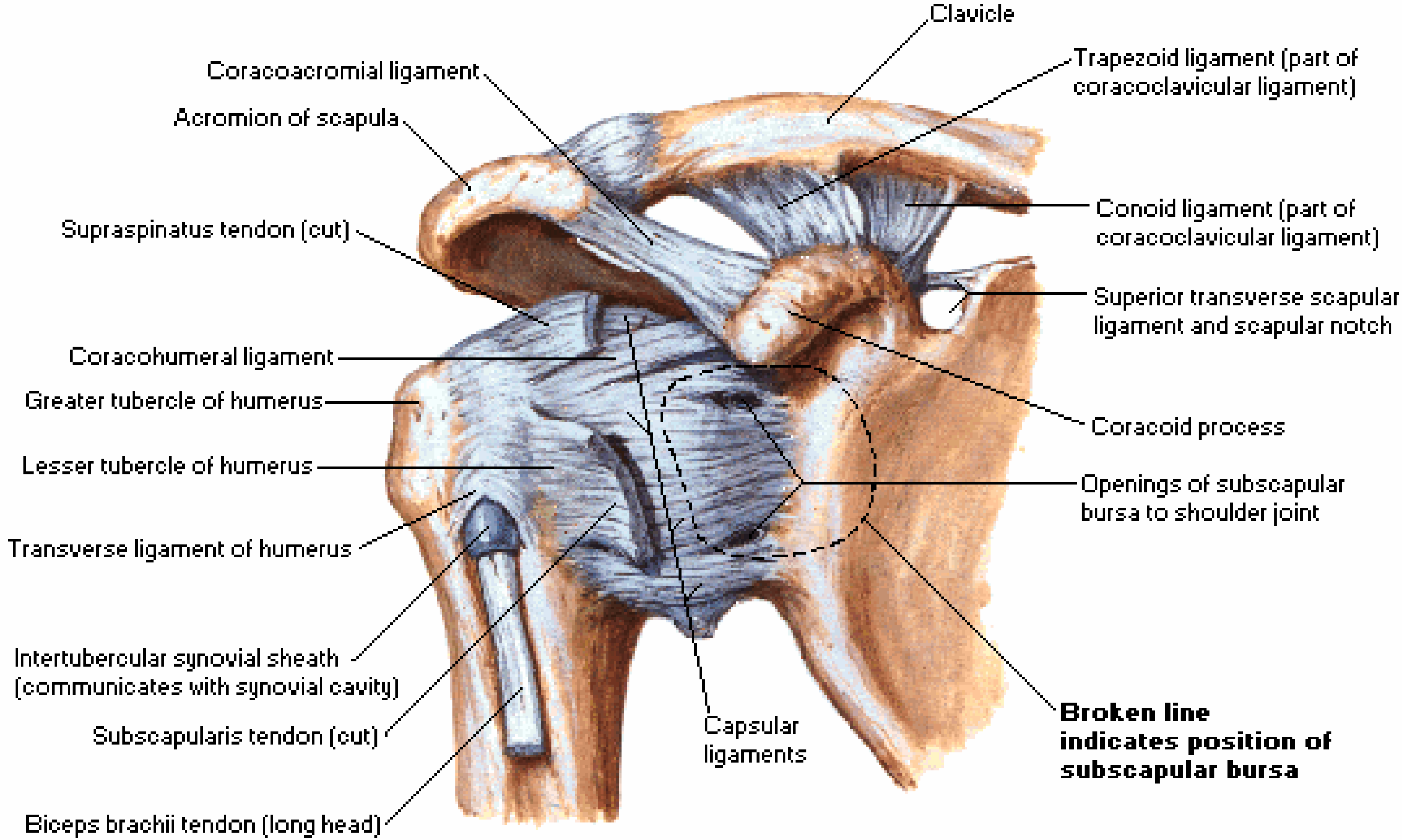
Posterior View - Features



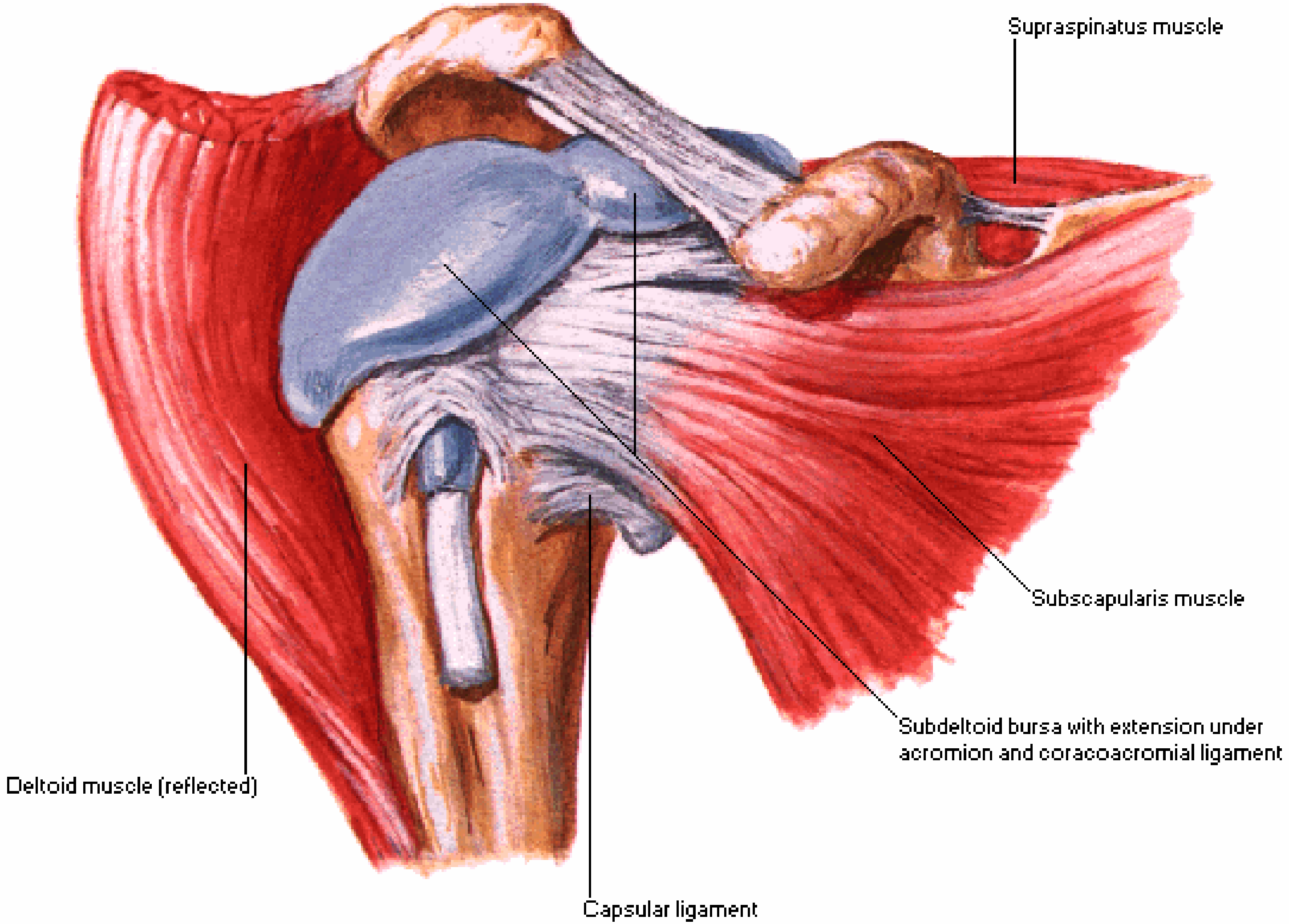
Posterior View - Muscle Attachments



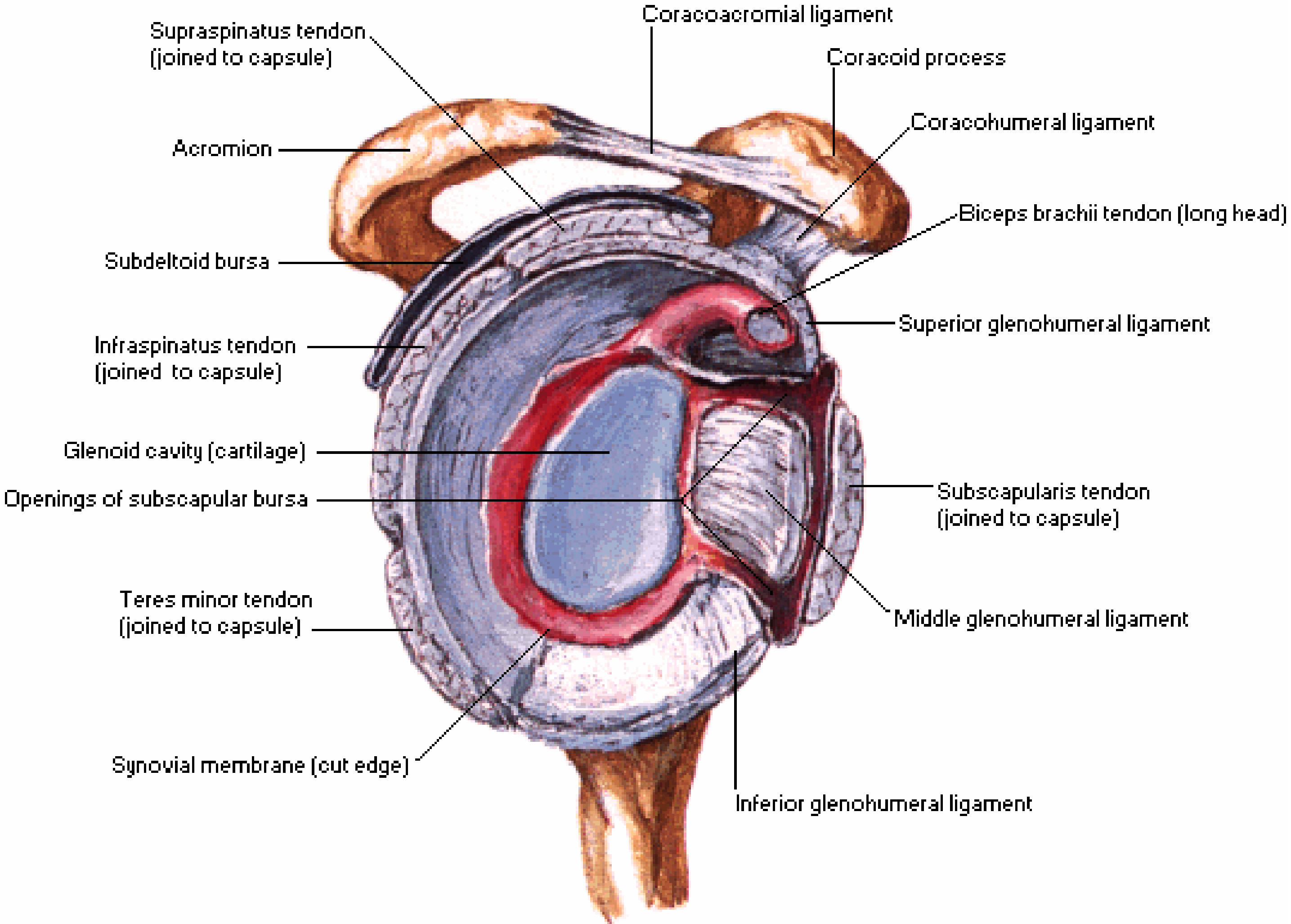
Anterior View - Tendons and Ligaments



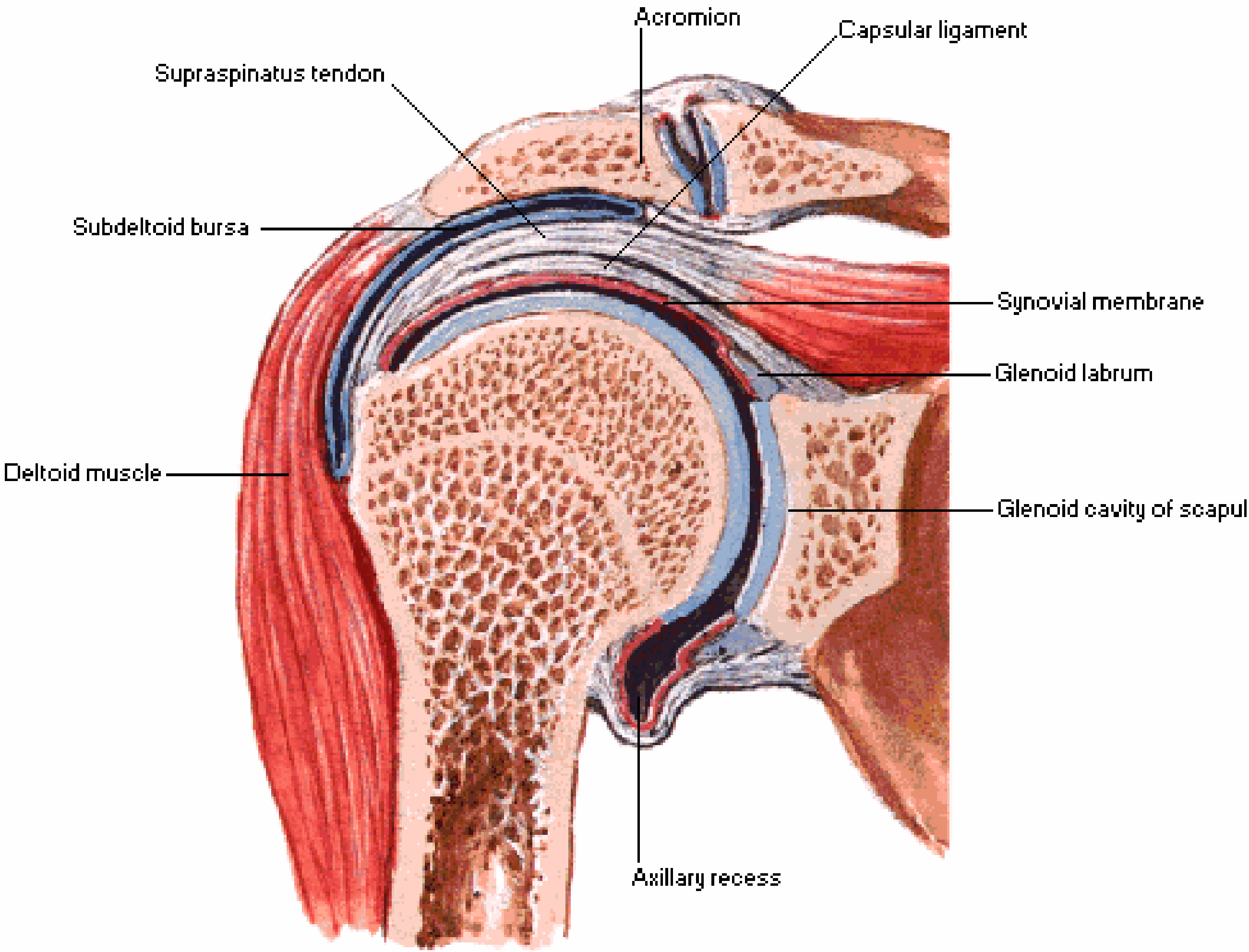
Anterior View - Supporting Muscles



Lateral View

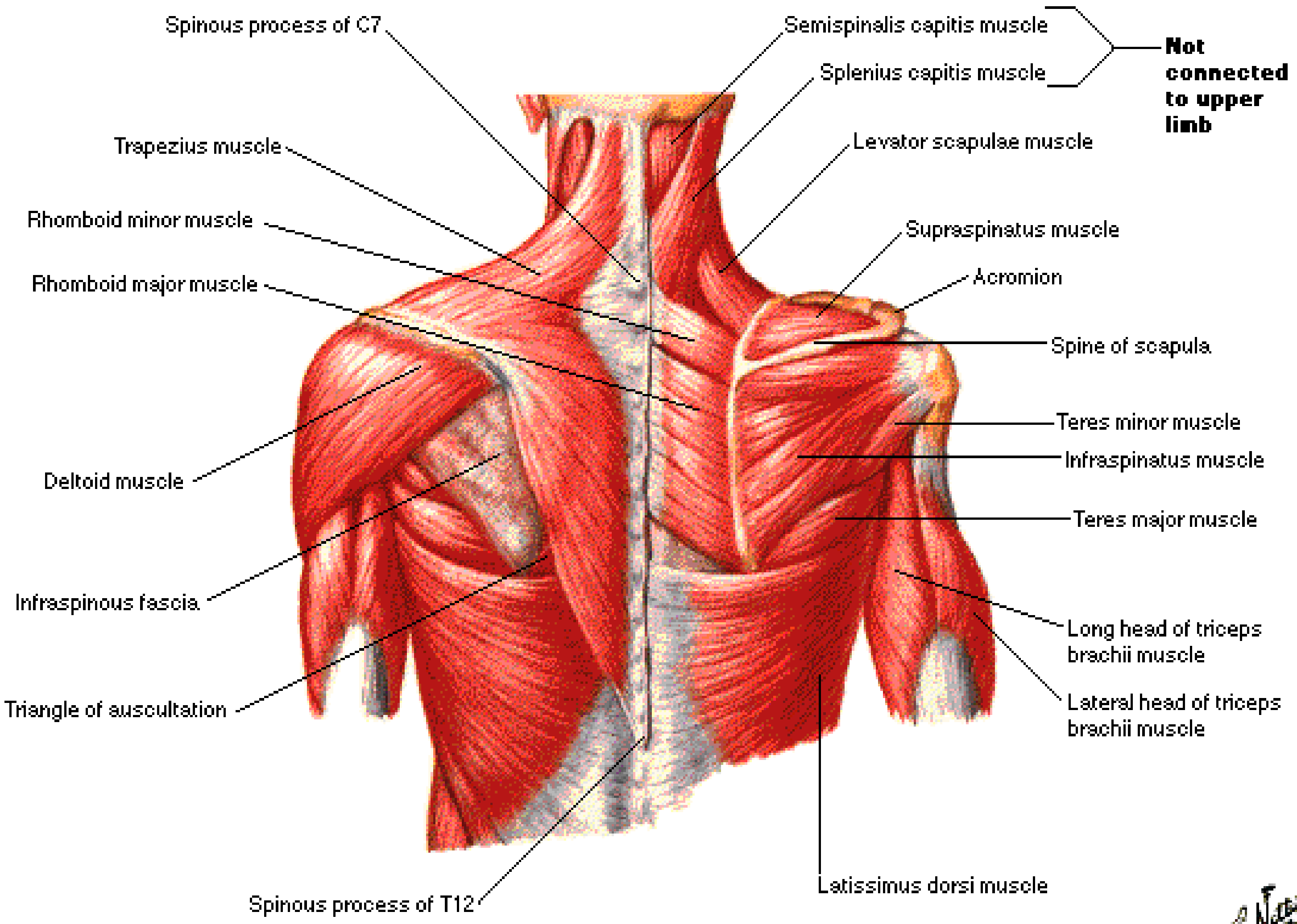


Coronal Section through Joint

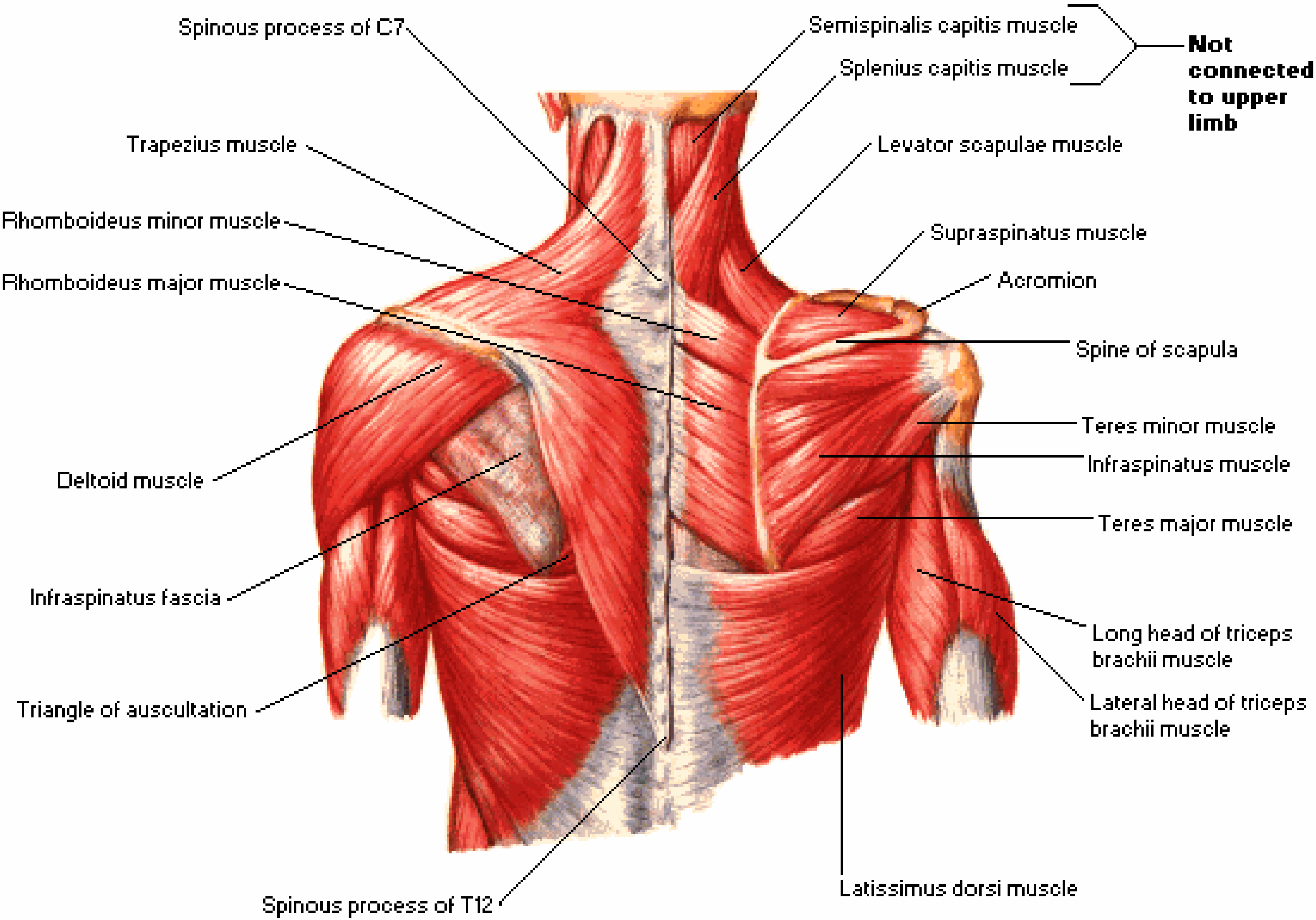


Muscles of Shoulder

Posterior View

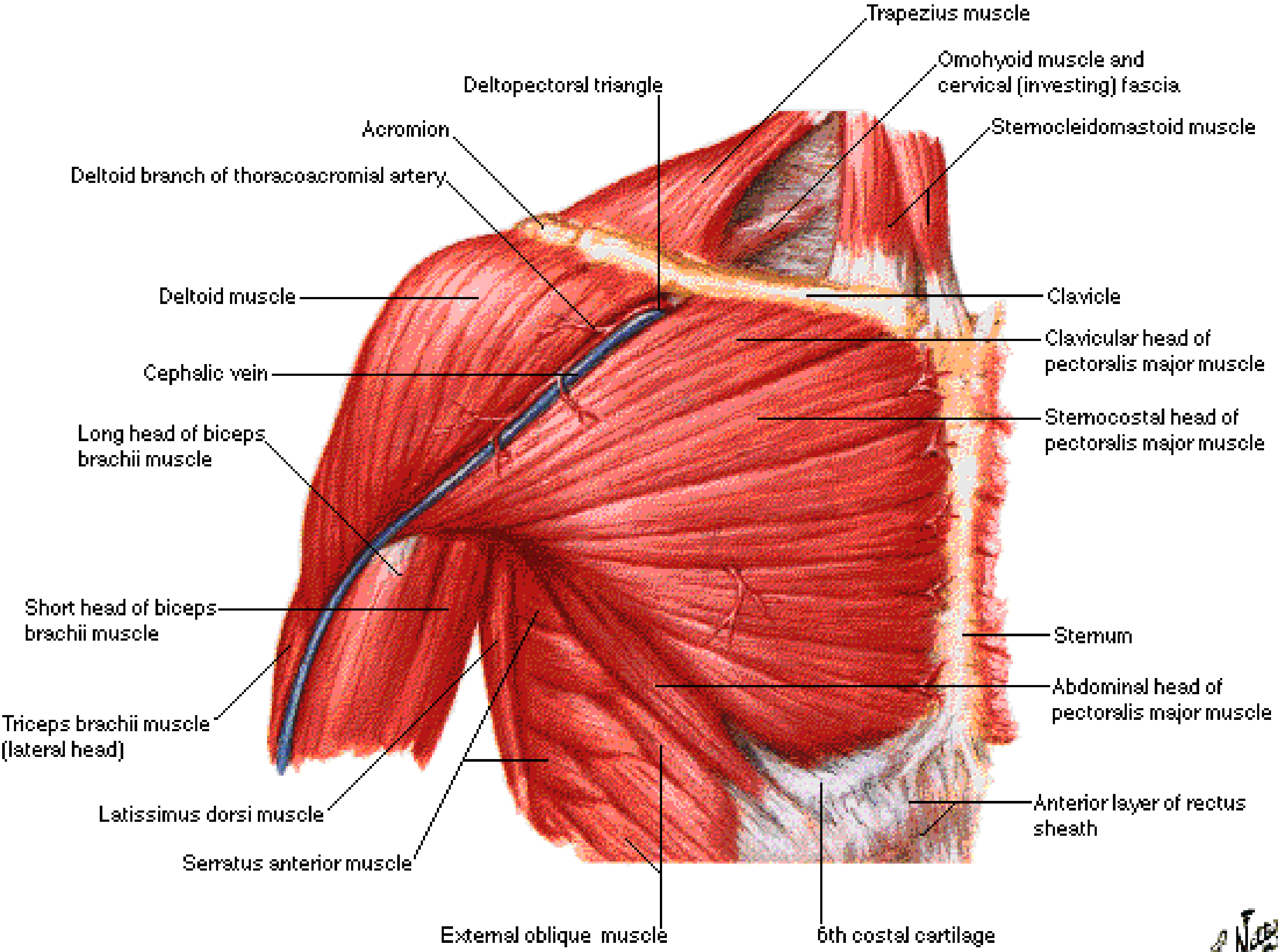


Posterior View

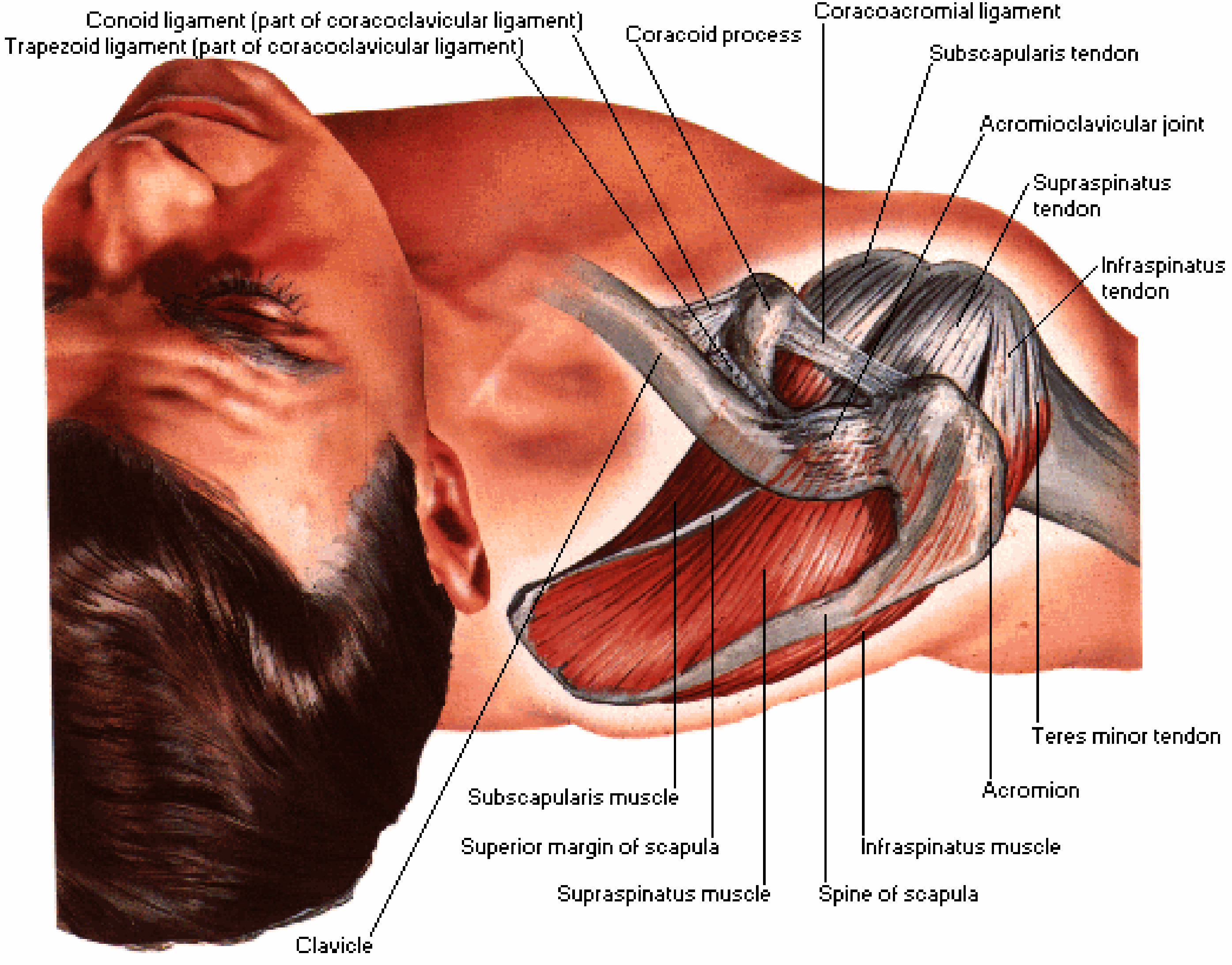


Muscles of Shoulder

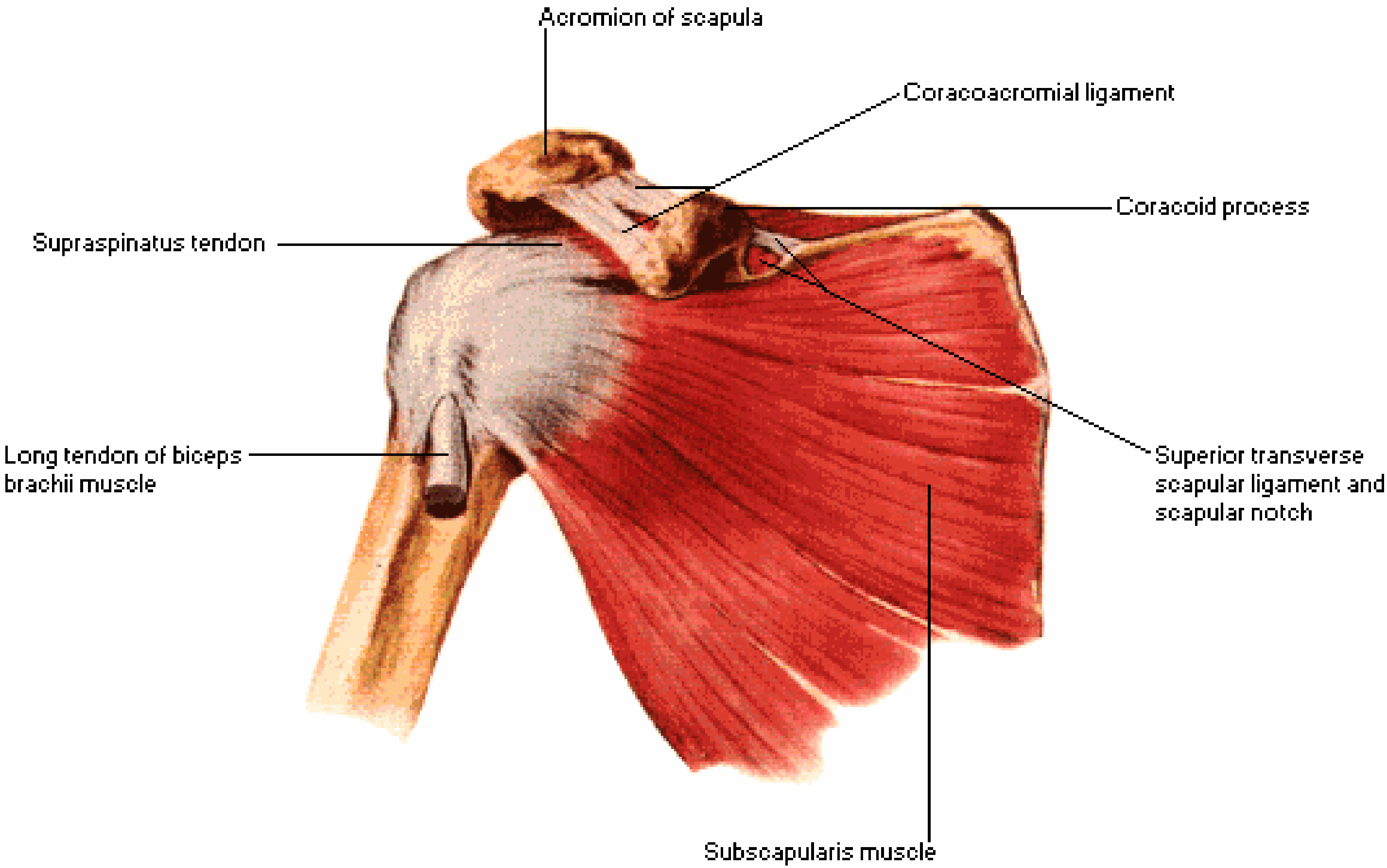
Anterior View



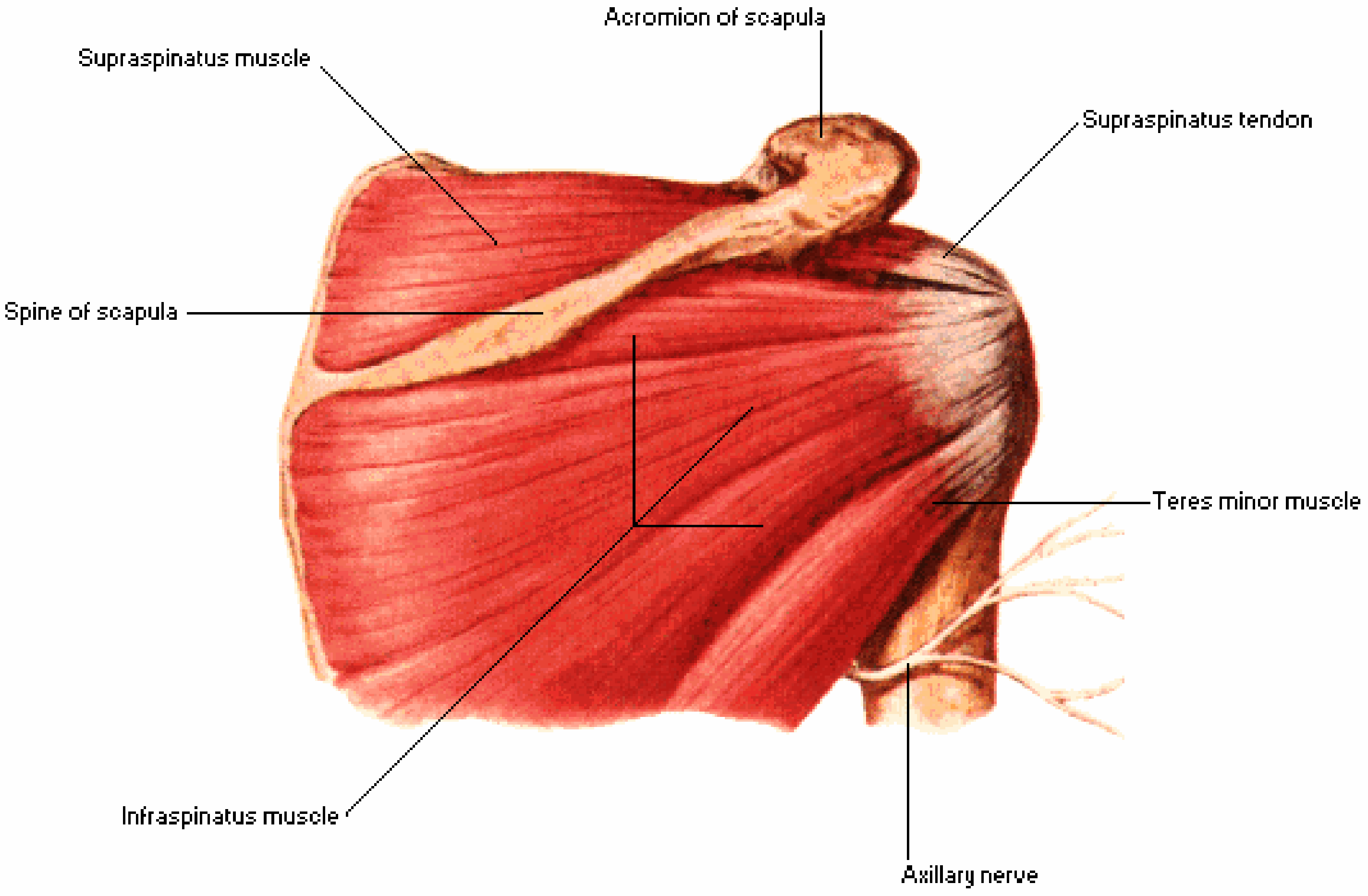
Superior View



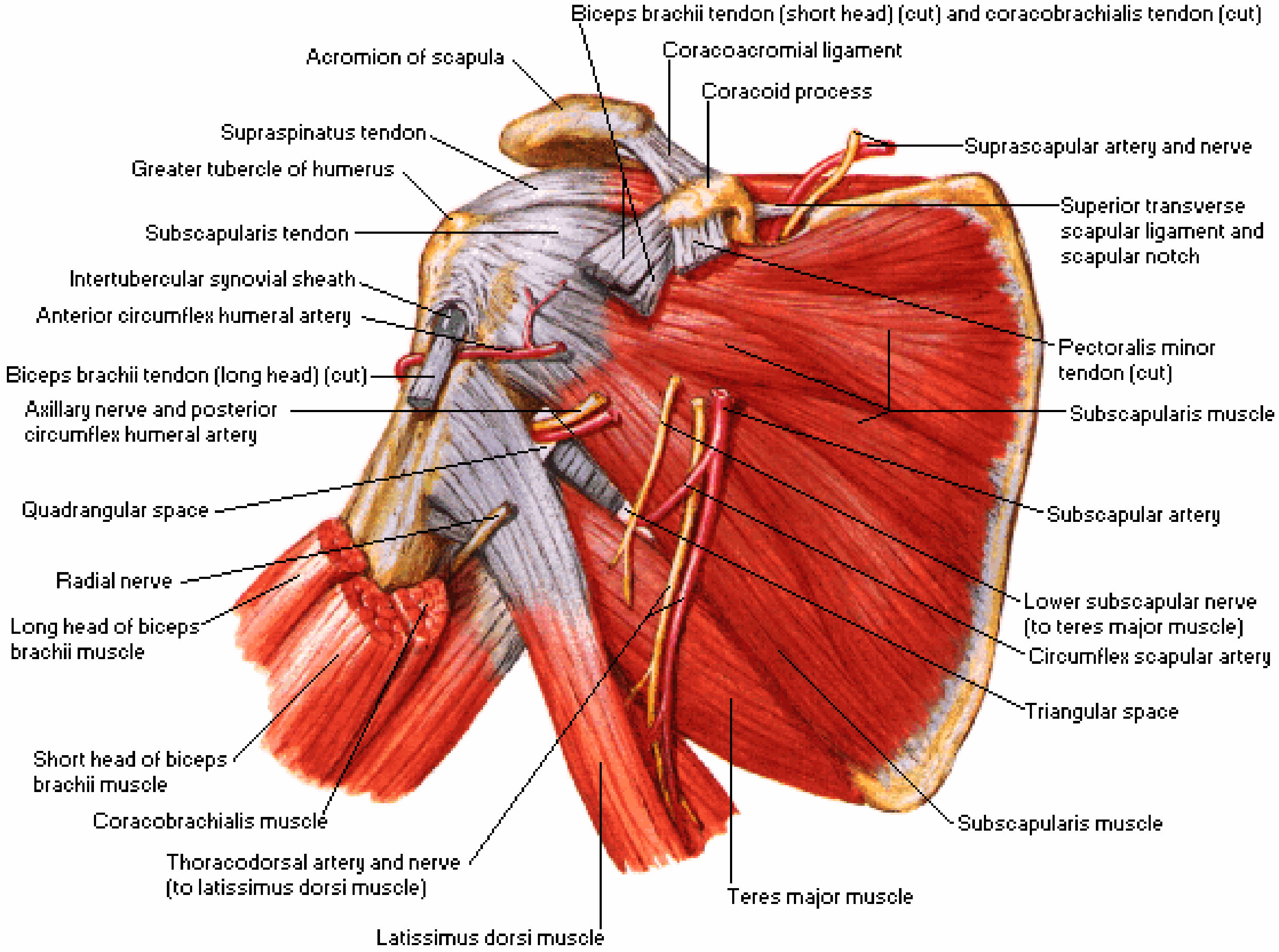
Anterior View



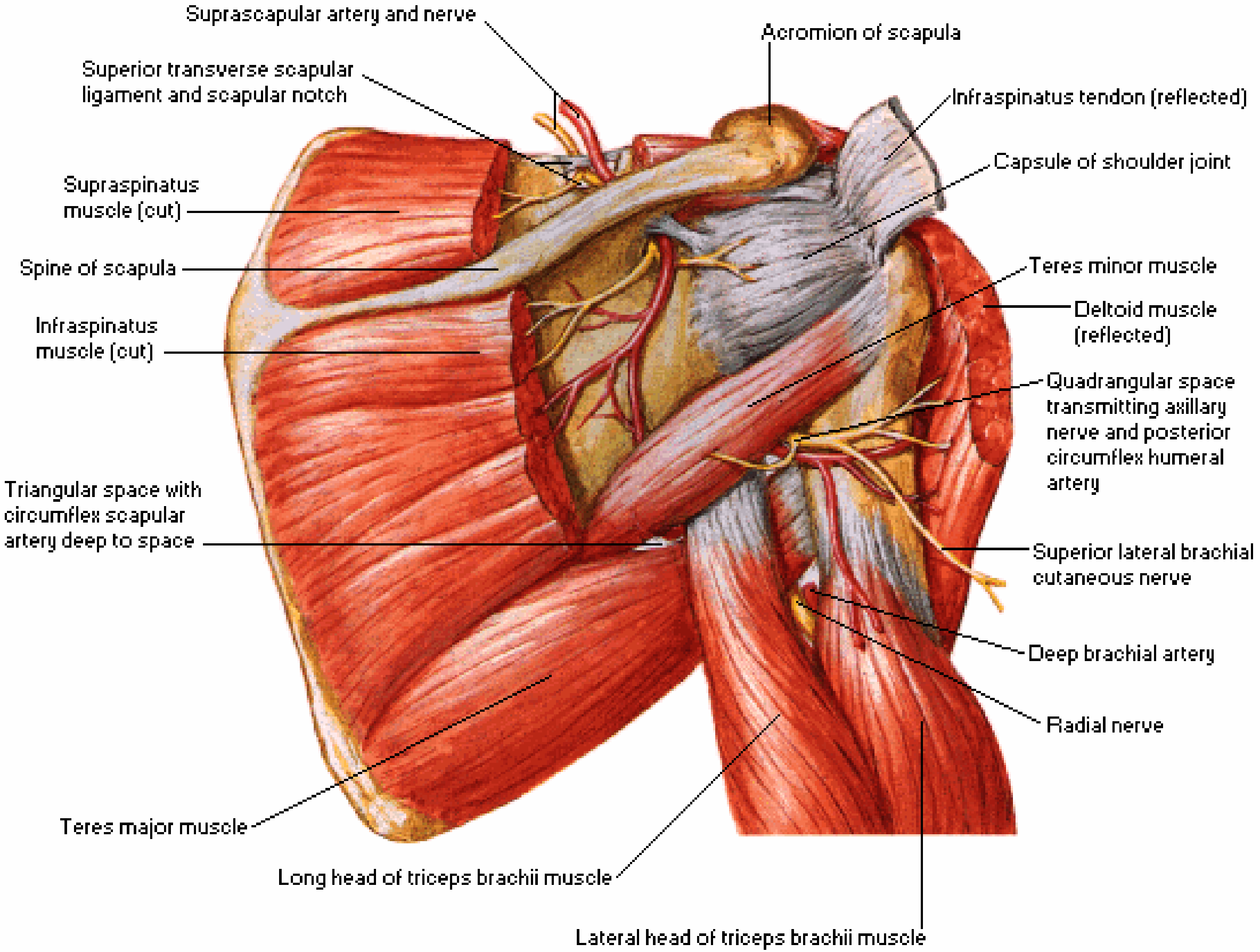
Posterior View



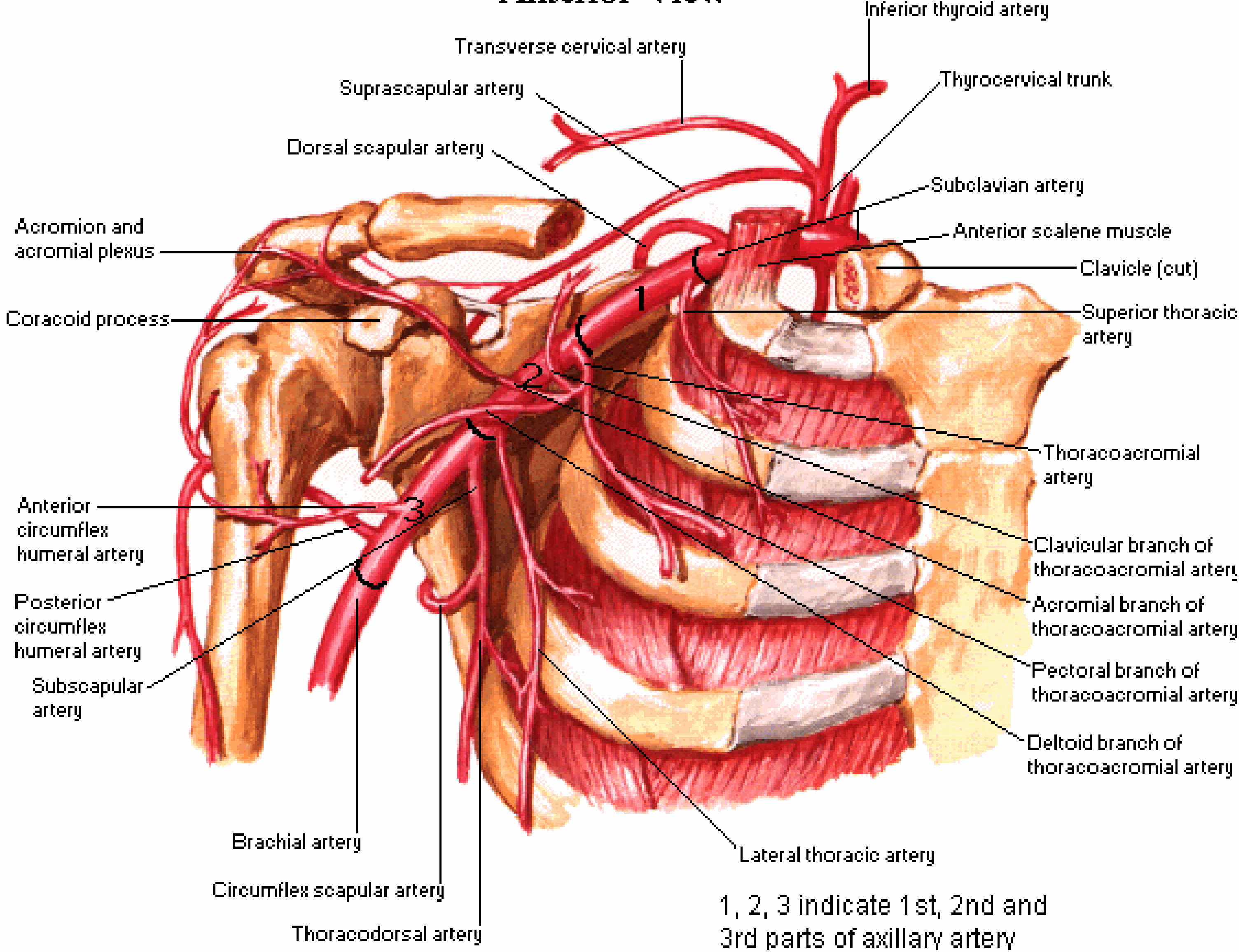
Anterior View



Posterior View

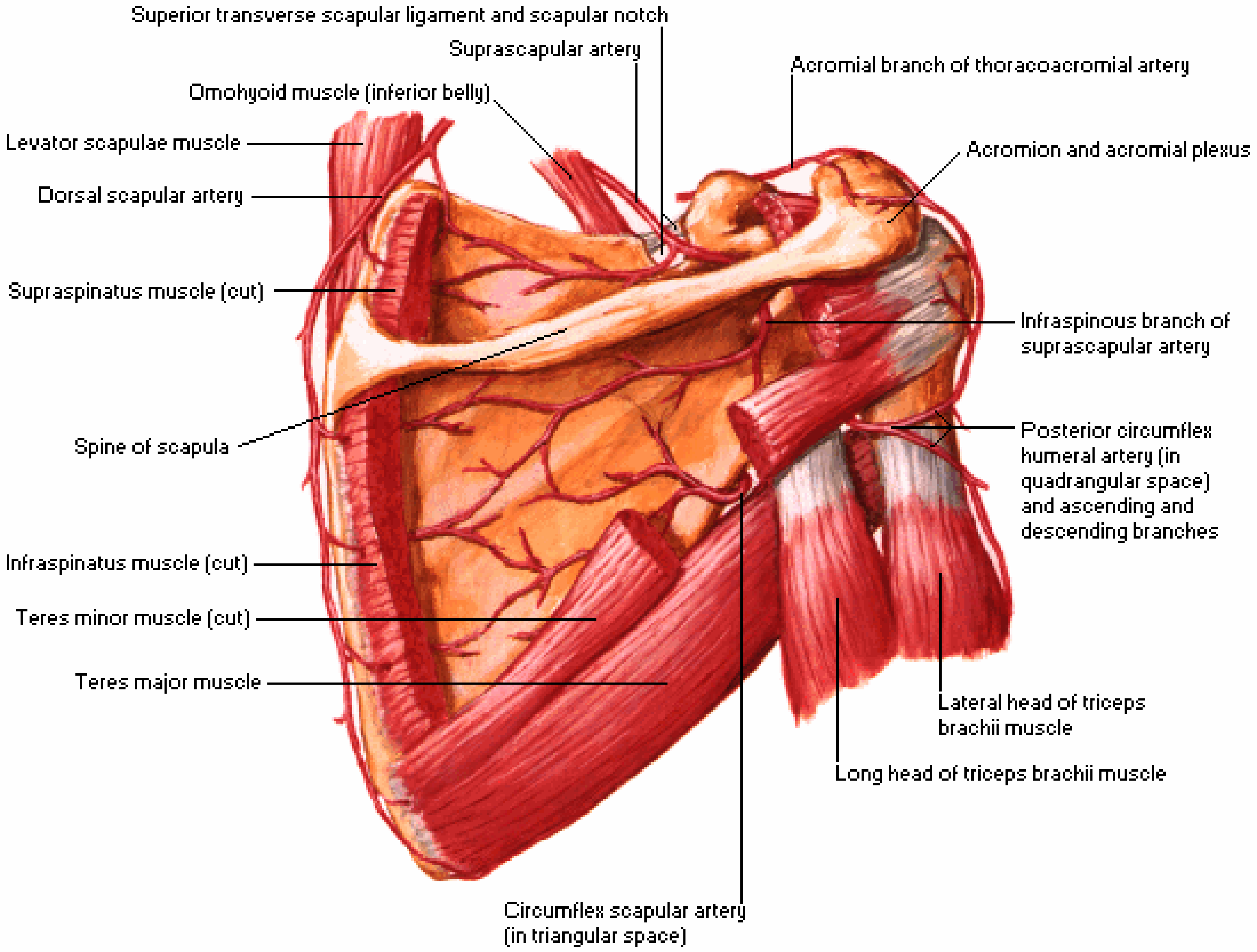


Anterior View

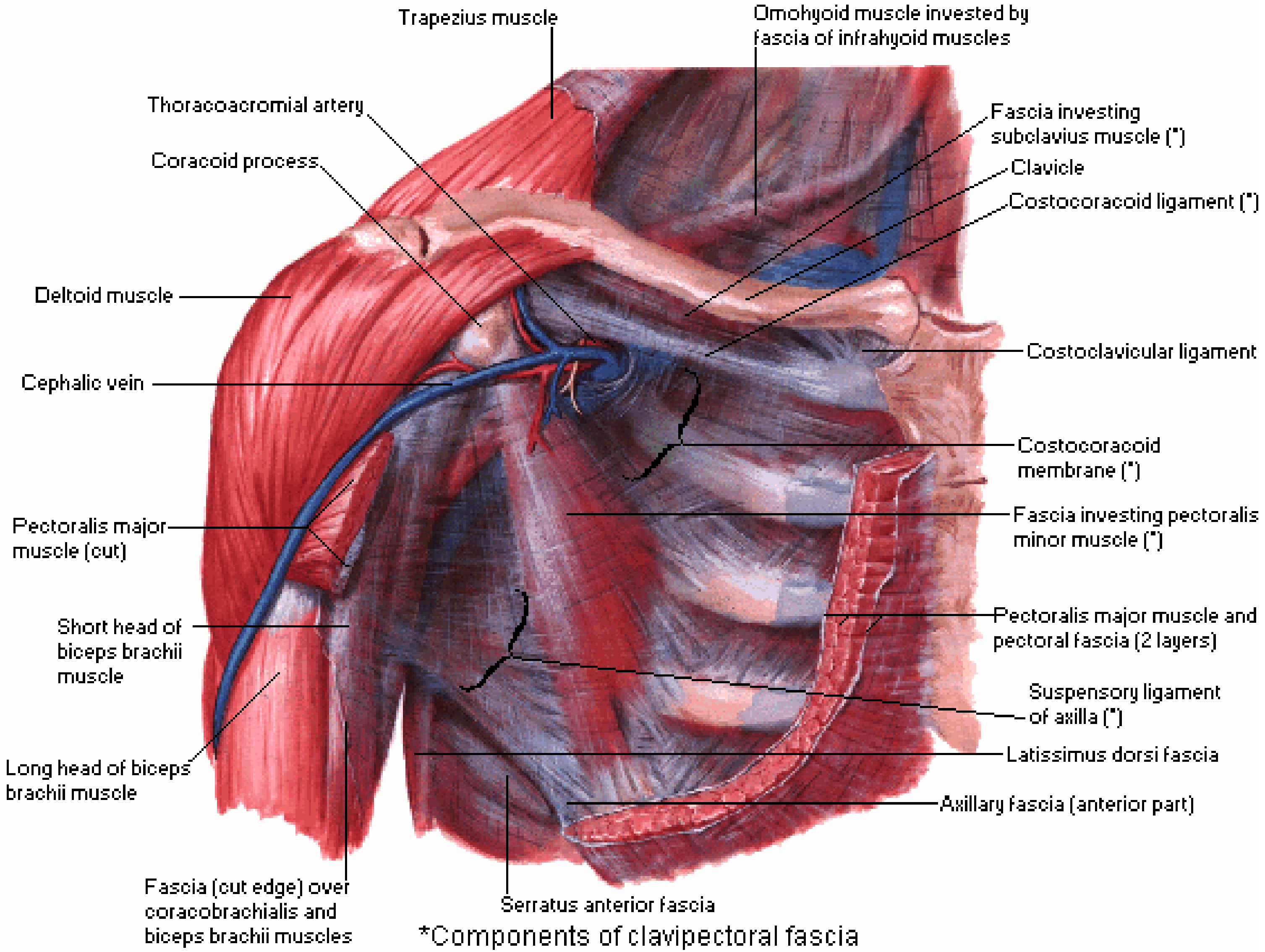


1, 2, 3 indicate 1st, 2nd and 3rd parts of axillary artery

Posterior View

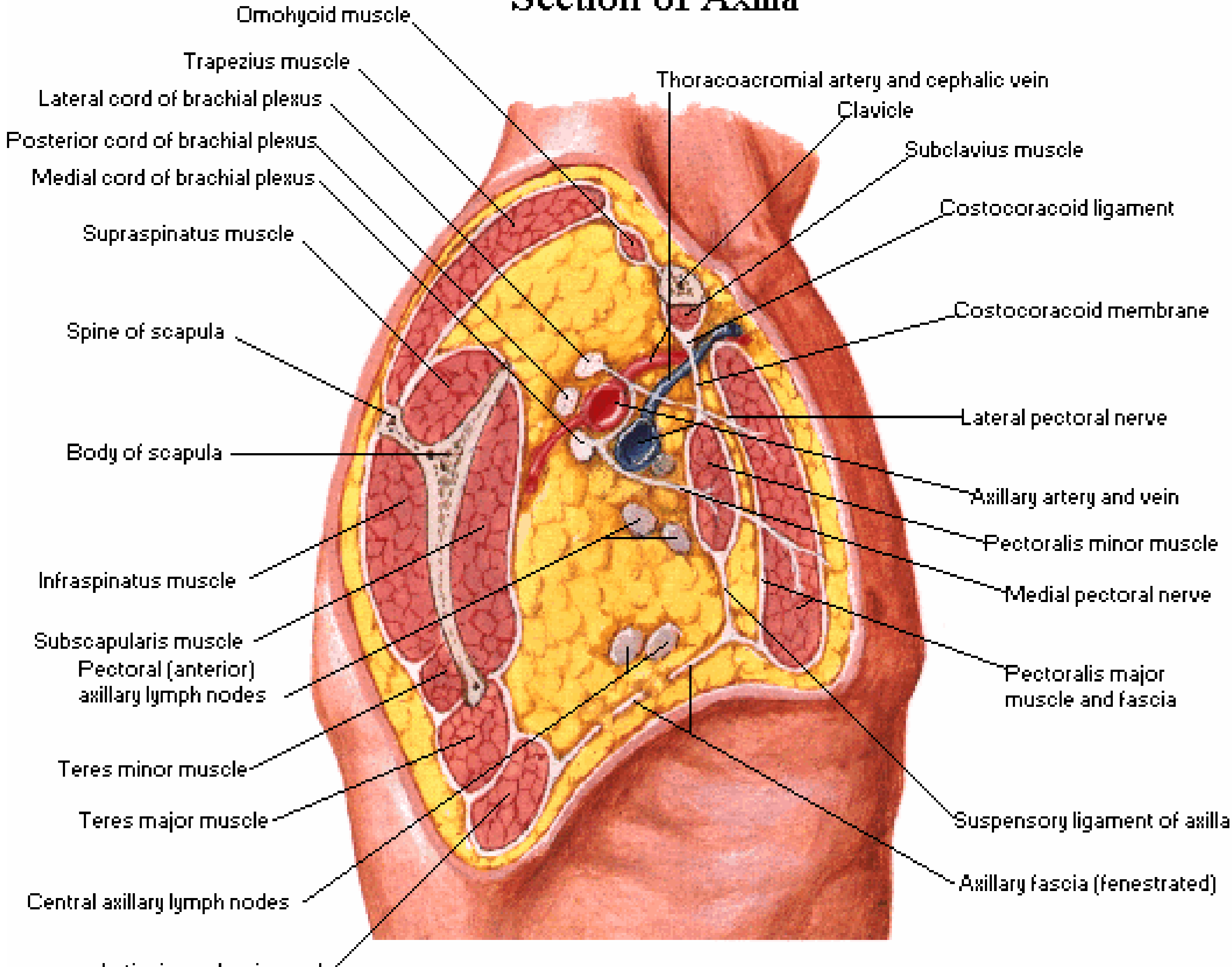


Anterior View



*Components of clavipectoral fascia

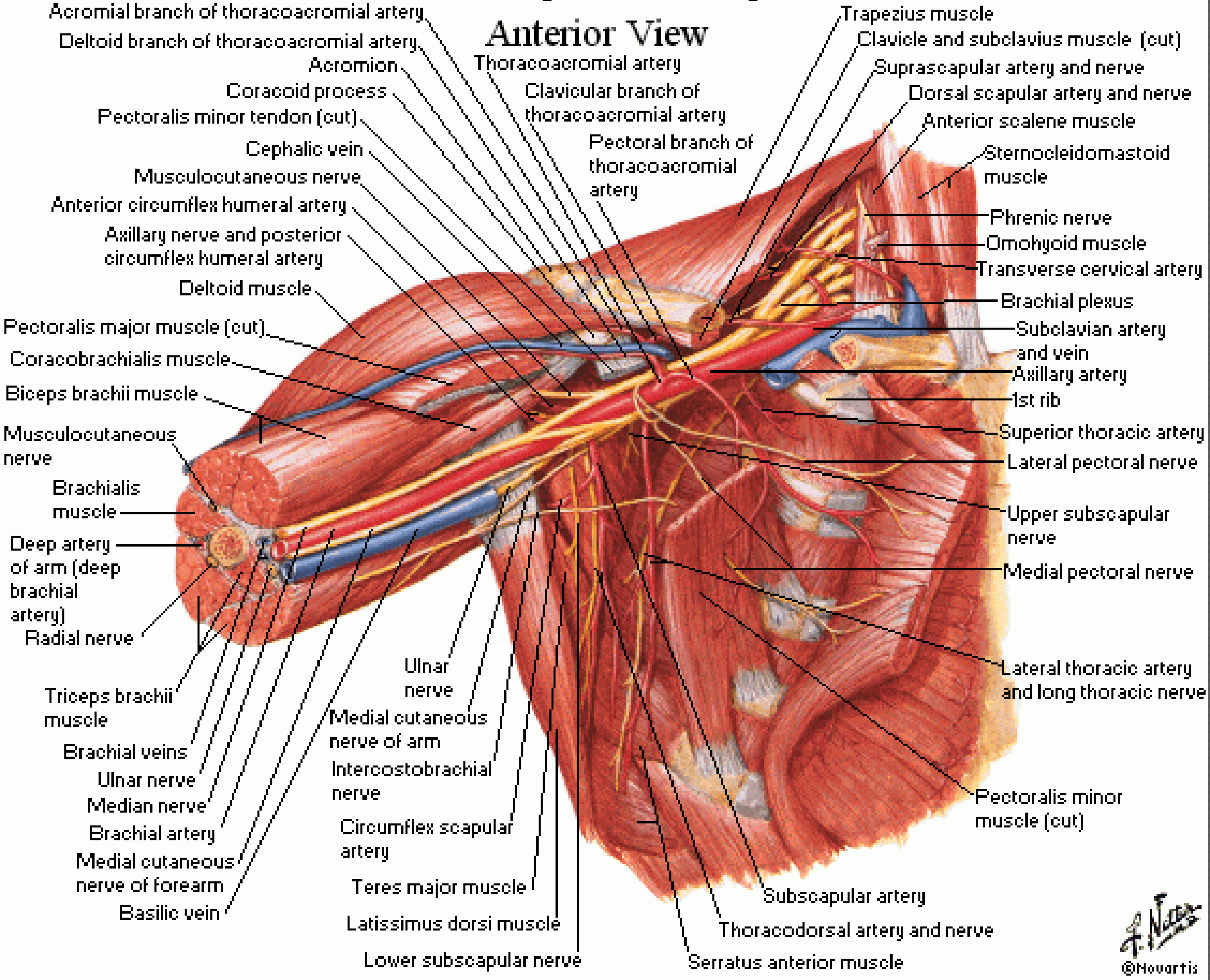
Section of Axilla



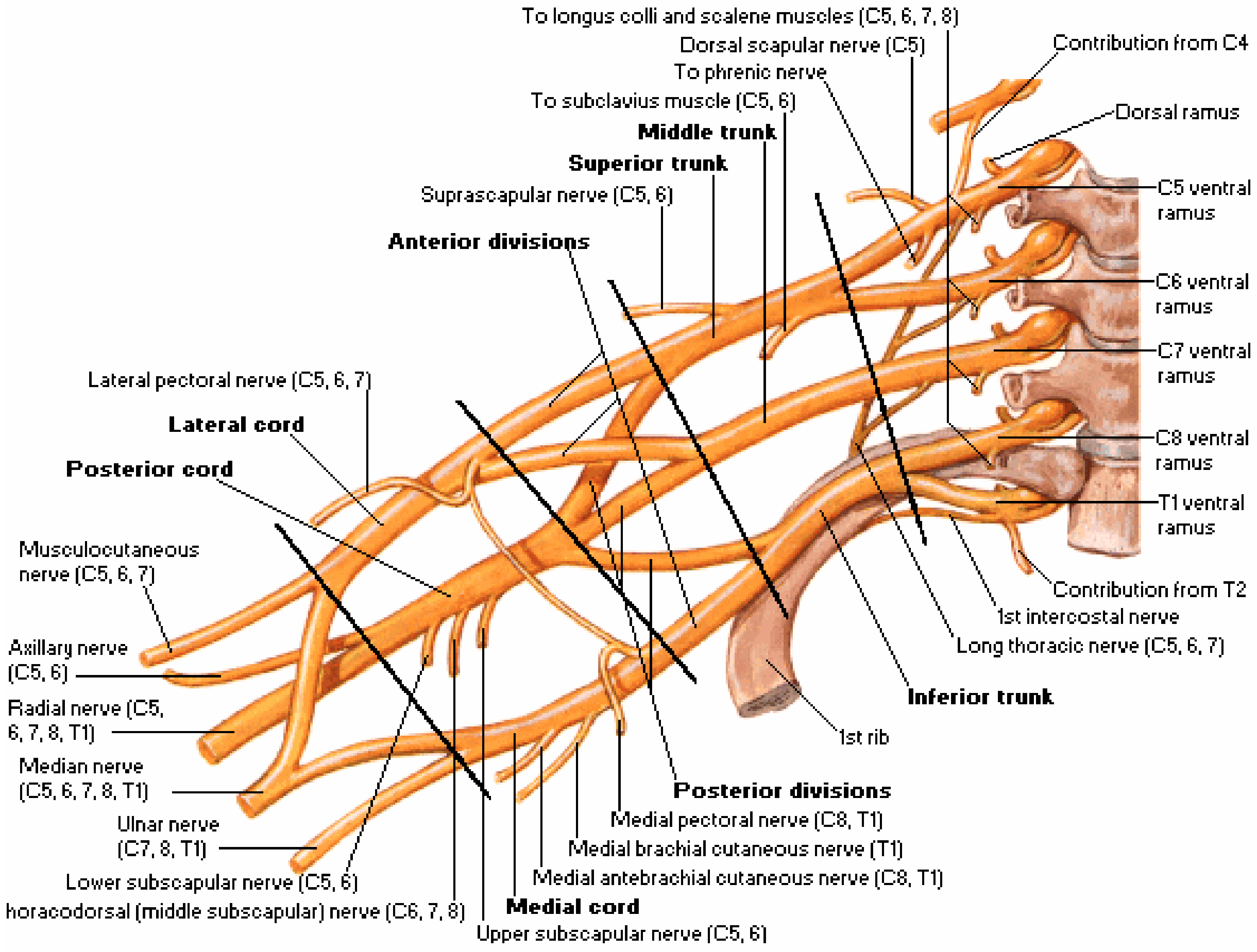
Oblique parasagittal section

Axilla [Dissection]

Anterior View



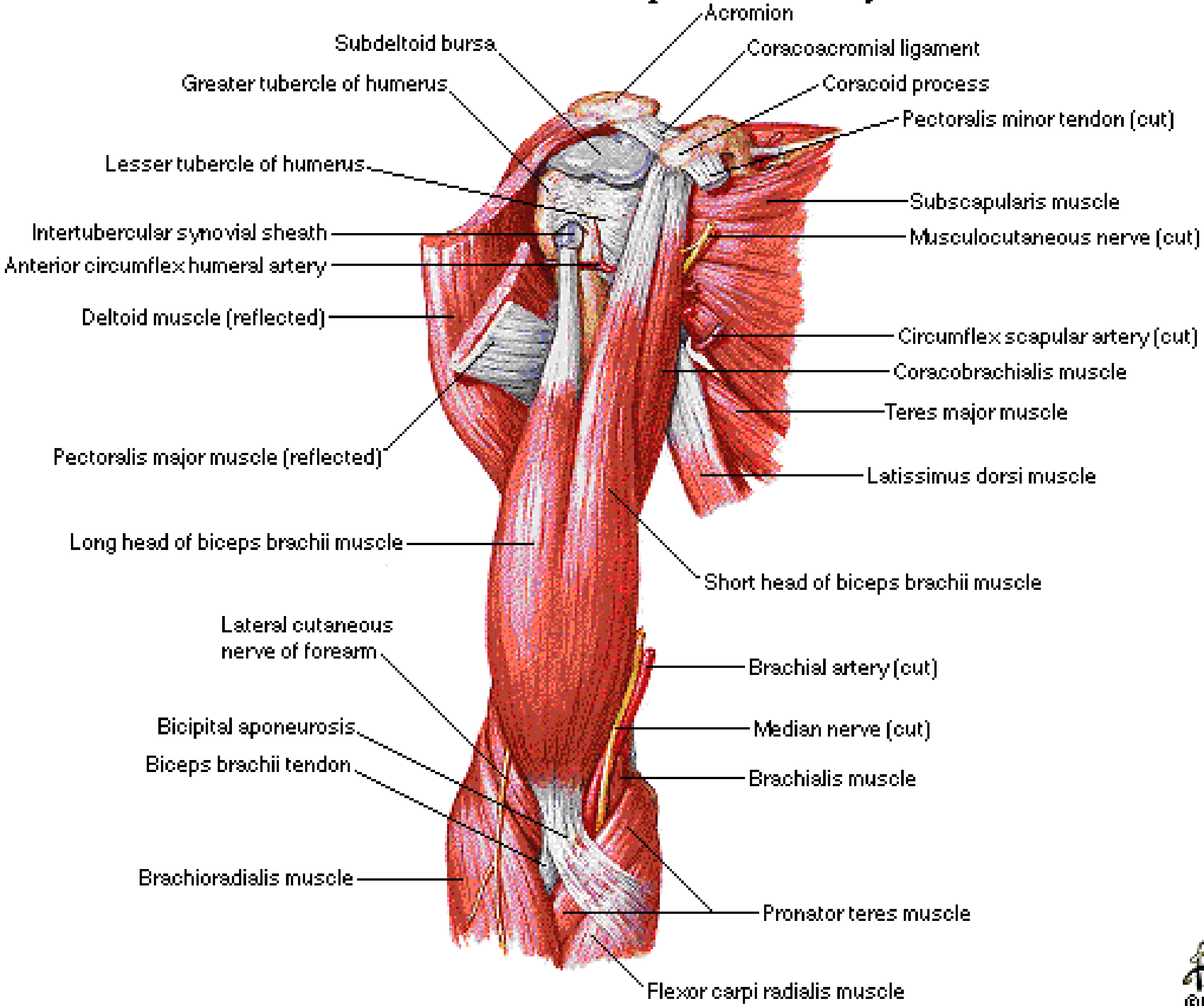
Schema



To longus colli and scalene muscles (C5, 6, 7, 8)
Dorsal scapular nerve (C5)
Contribution from C4
To phrenic nerve
To subclavius muscle (C5, 6)
Dorsal ramus
Middle trunk
Superior trunk
Suprascapular nerve (C5, 6)
C5 ventral ramus
Anterior divisions
C6 ventral ramus
C7 ventral ramus
Lateral pectoral nerve (C5, 6, 7)
Lateral cord
C8 ventral ramus
Posterior cord
T1 ventral ramus
Musculocutaneous nerve (C5, 6, 7)
Contribution from T2
1st intercostal nerve
Axillary nerve (C5, 6)
Long thoracic nerve (C5, 6, 7)
Radial nerve (C5, 6, 7, 8, T1)
Inferior trunk
1st rib
Median nerve (C5, 6, 7, 8, T1)
Posterior divisions
Ulnar nerve (C7, 8, T1)
Medial pectoral nerve (C8, T1)
Medial brachial cutaneous nerve (T1)
Medial antebrachial cutaneous nerve (C8, T1)
Lower subscapular nerve (C5, 6)
horacodorsal (middle subscapular) nerve (C6, 7, 8)
Medial cord
Upper subscapular nerve (C5, 6)

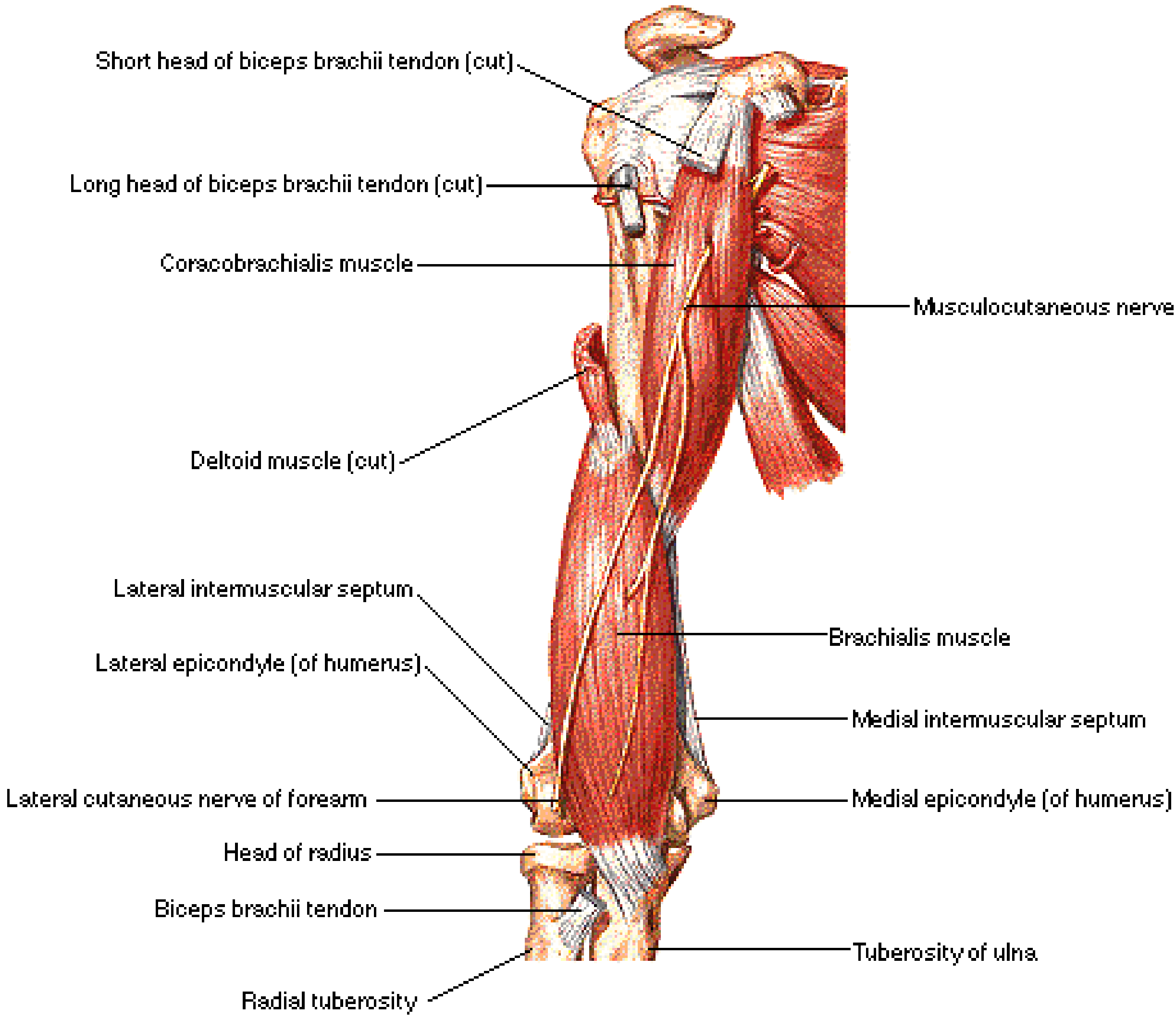
Muscles of Arm

Anterior View - Superficial Layer



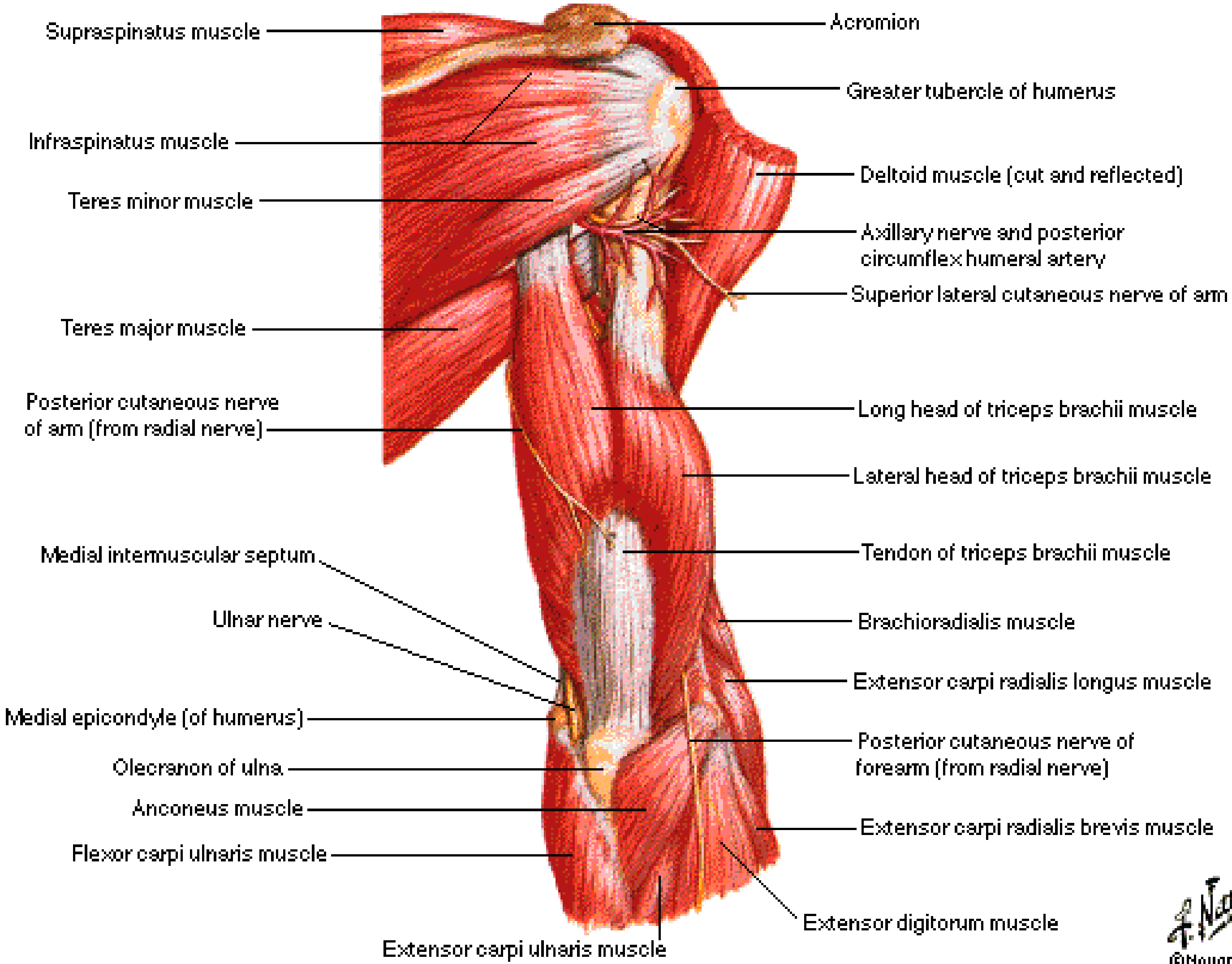
Muscles of Arm

Anterior View - Deep Layer



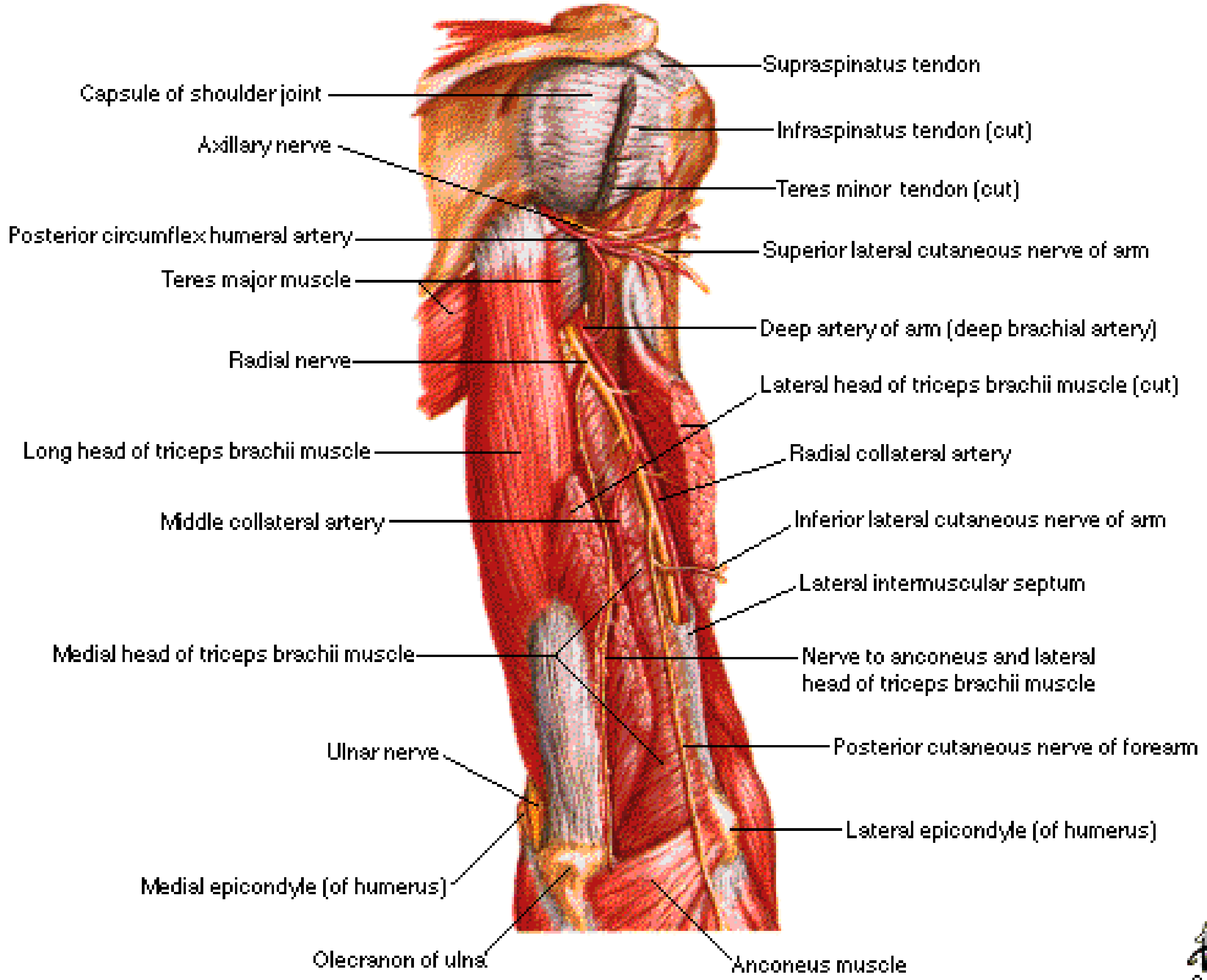
Muscles of Arm

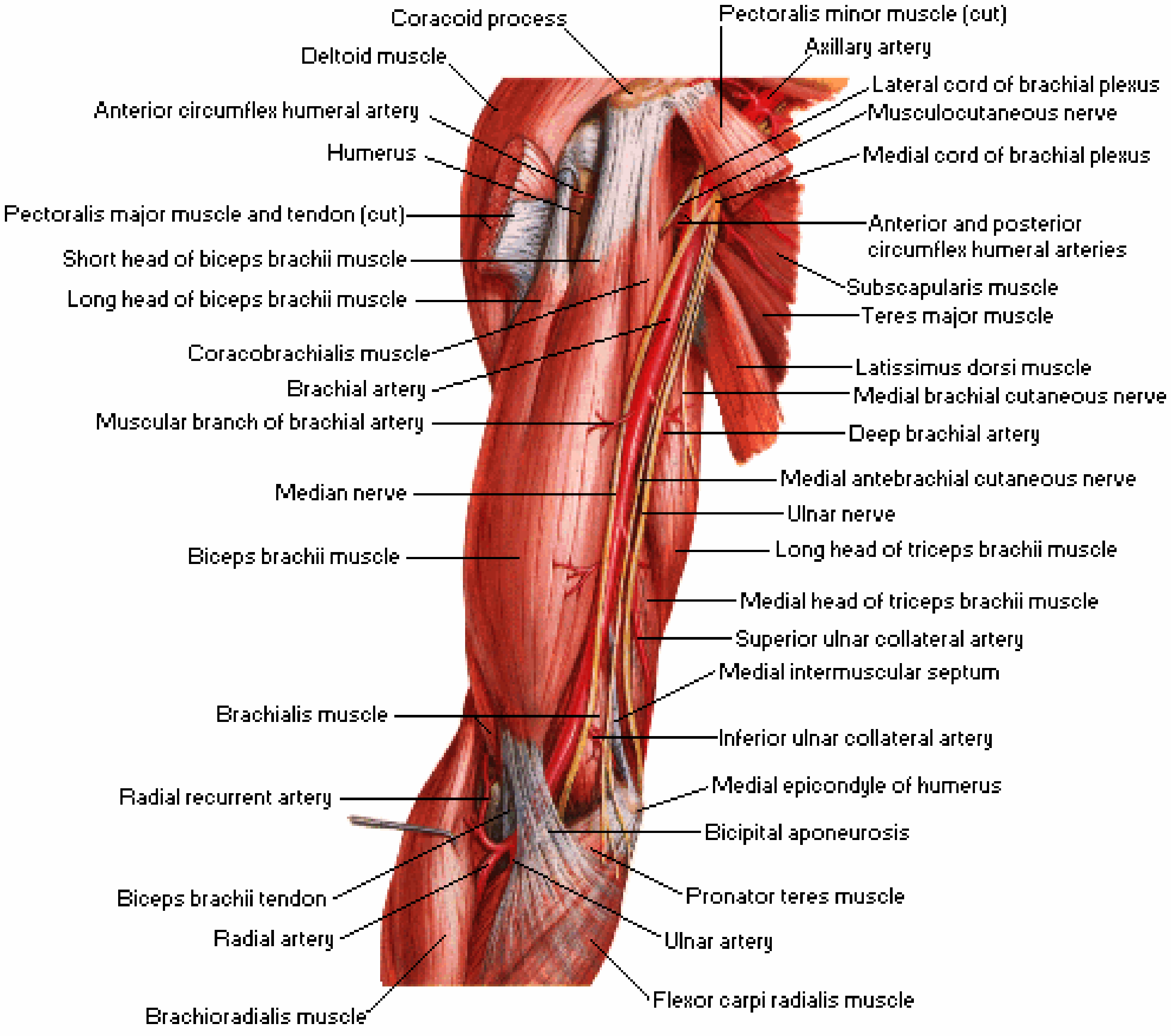
Posterior View - Superficial Layer

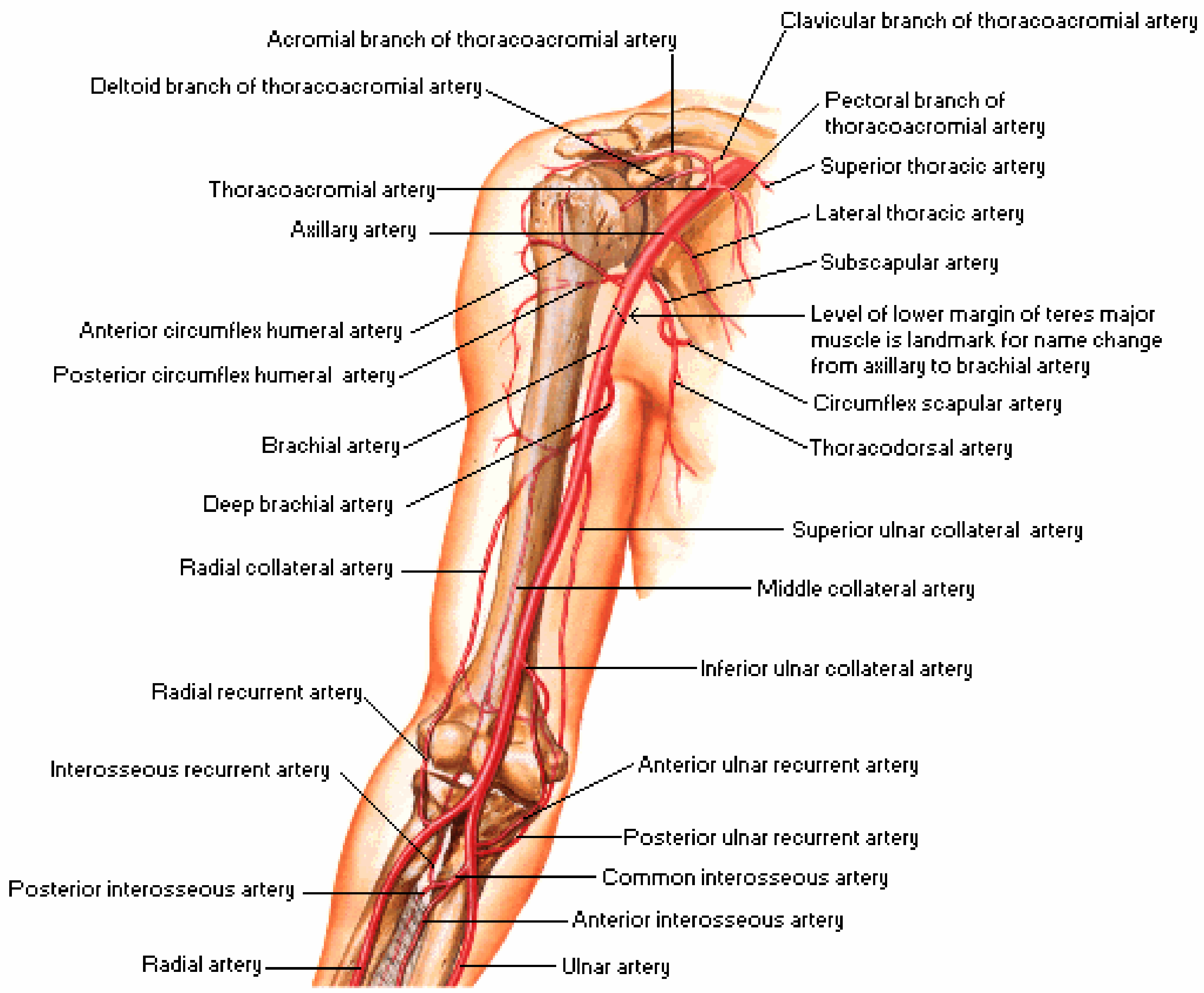


Muscles of Arm

Posterior View - Deep Layer



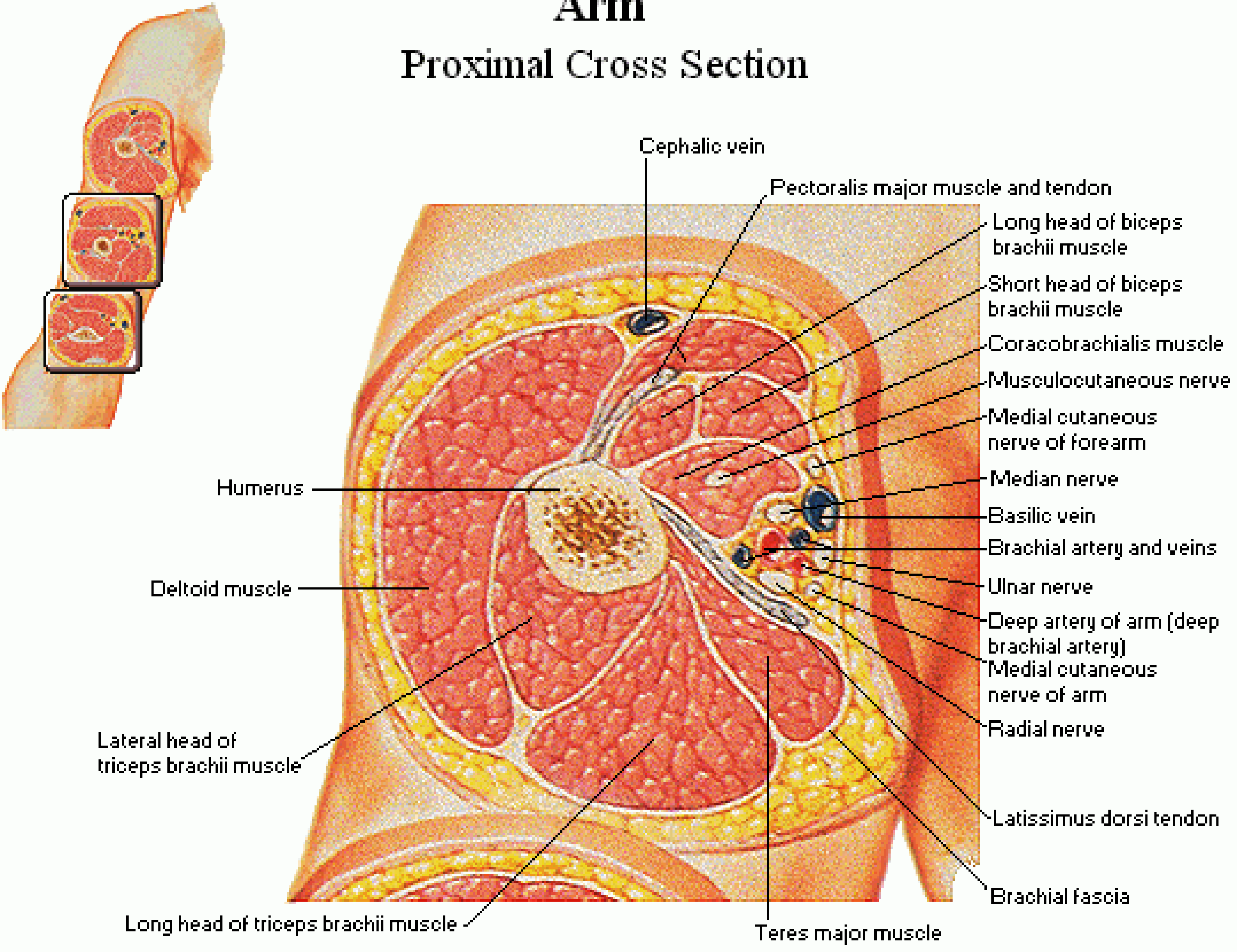

Coracoid process
Pectoralis minor muscle (cut)
Axillary artery
Deltoid muscle
Lateral cord of brachial plexus
Anterior circumflex humeral artery
Musculocutaneous nerve
Humerus
Medial cord of brachial plexus
Pectoralis major muscle and tendon (cut)
Anterior and posterior circumflex humeral arteries
Short head of biceps brachii muscle
Subscapularis muscle
Long head of biceps brachii muscle
Teres major muscle
Coracobrachialis muscle
Latissimus dorsi muscle
Brachial artery
Medial brachial cutaneous nerve
Muscular branch of brachial artery
Deep brachial artery
Medial antebrachial cutaneous nerve
Median nerve
Ulnar nerve
Biceps brachii muscle
Long head of triceps brachii muscle
Medial head of triceps brachii muscle
Superior ulnar collateral artery
Medial intermuscular septum
Brachialis muscle
Inferior ulnar collateral artery
Medial epicondyle of humerus
Radial recurrent artery
Bicipital aponeurosis
Pronator teres muscle
Biceps brachii tendon
Ulnar artery
Radial artery
Flexor carpi radialis muscle
Brachioradialis muscle



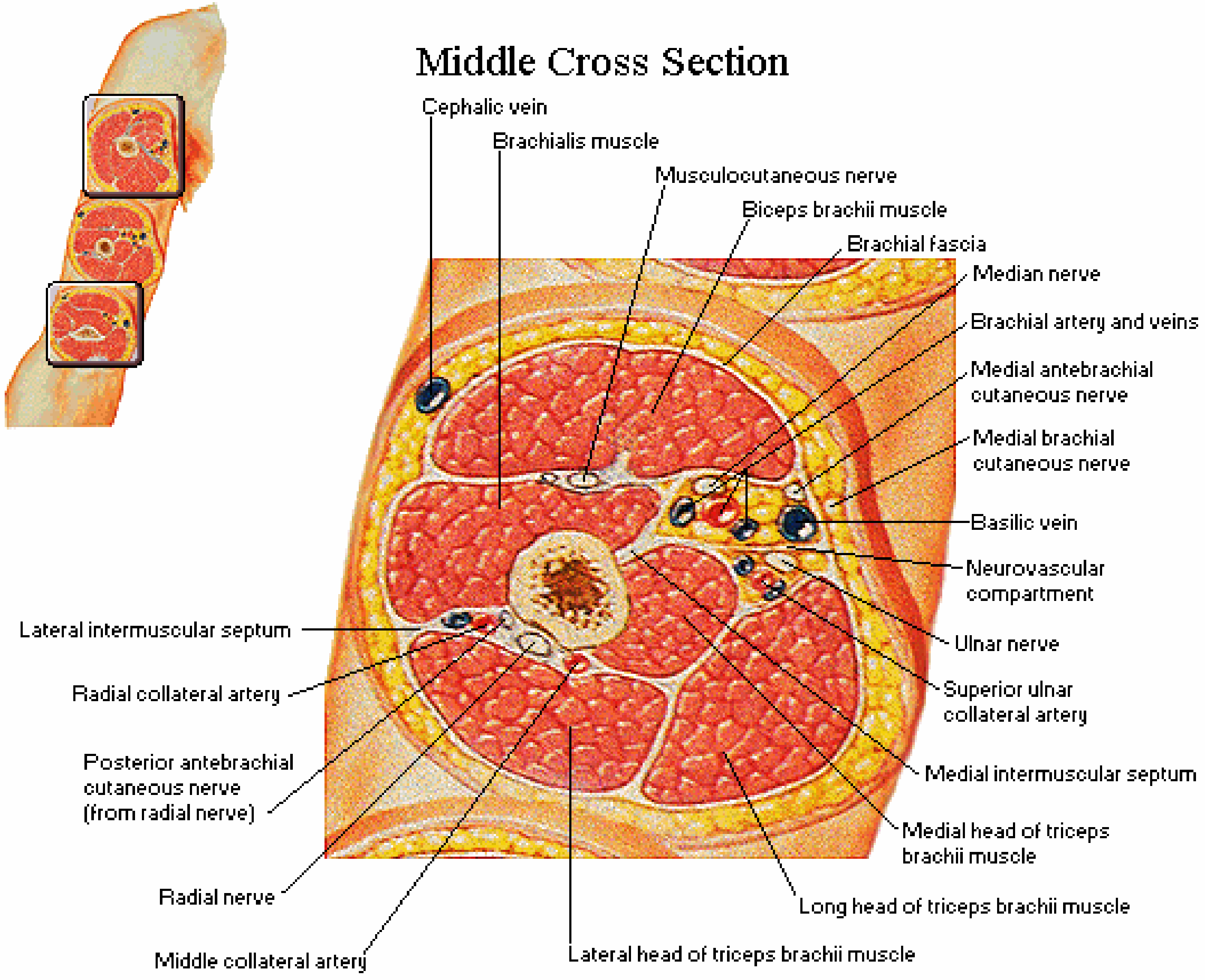
Clavicular branch of thoracoacromial artery
Acromial branch of thoracoacromial artery
Deltoid branch of thoracoacromial artery
Pectoral branch of thoracoacromial artery
Superior thoracic artery
Thoracoacromial artery
Lateral thoracic artery
Axillary artery
Subscapular artery
Level of lower margin of teres major muscle is landmark for name change from axillary to brachial artery
Anterior circumflex humeral artery
Posterior circumflex humeral artery
Circumflex scapular artery
Brachial artery
Thoracodorsal artery
Deep brachial artery
Superior ulnar collateral artery
Radial collateral artery
Middle collateral artery
Inferior ulnar collateral artery
Radial recurrent artery
Interosseous recurrent artery
Anterior ulnar recurrent artery
Posterior ulnar recurrent artery
Common interosseous artery
Posterior interosseous artery
Anterior interosseous artery
Radial artery
Ulnar artery

Arm

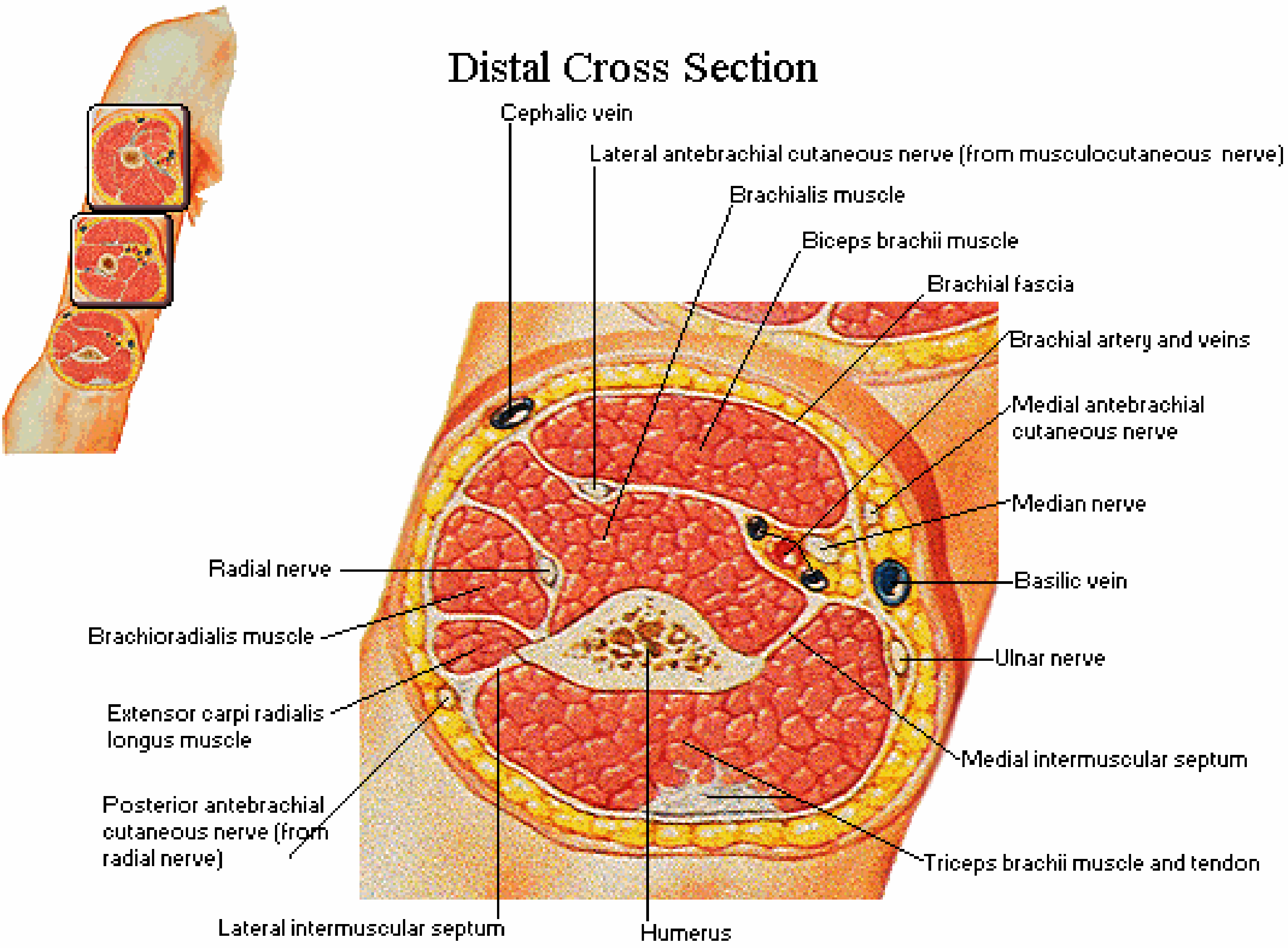
Proximal Cross Section



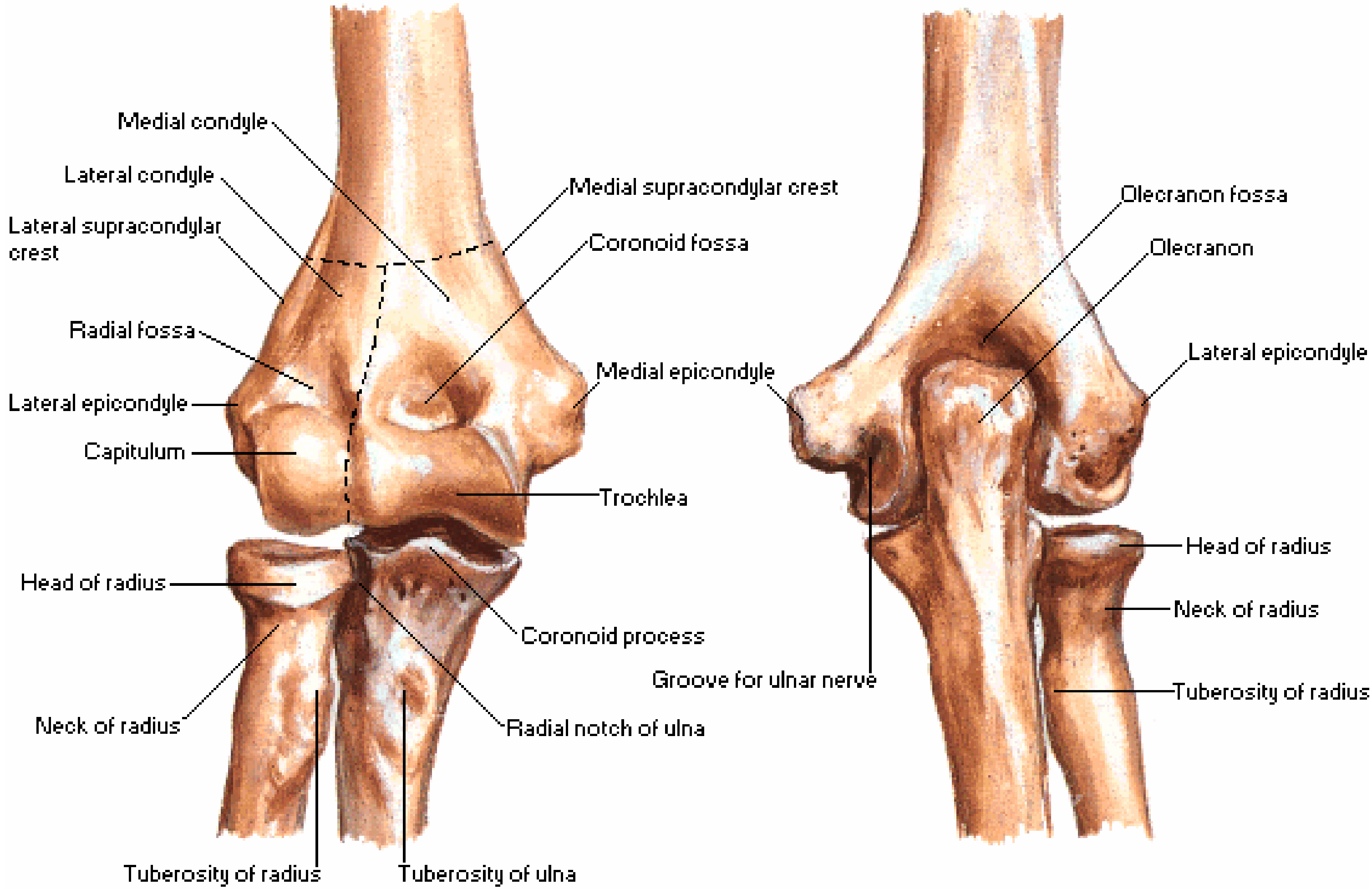
Middle Cross Section



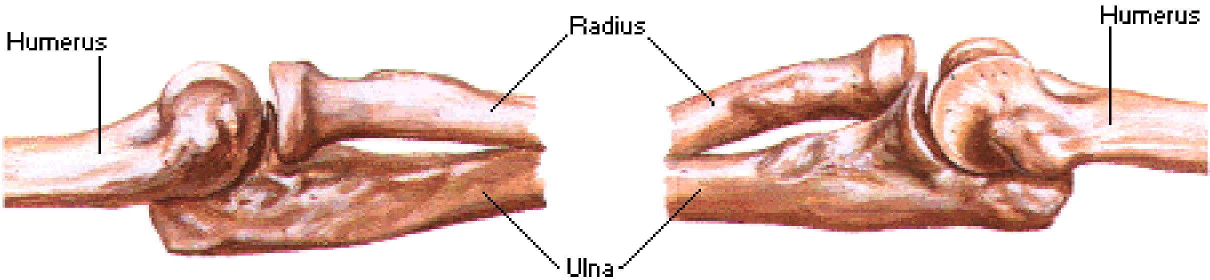
Distal Cross Section



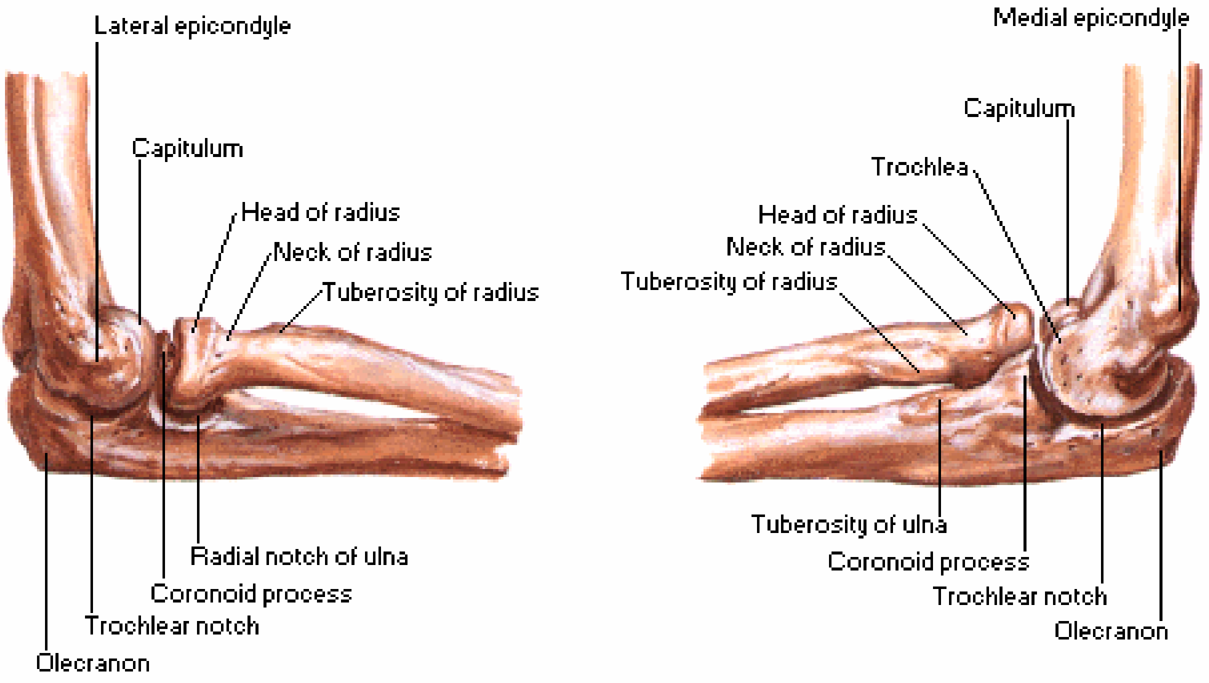
Anterior and Posterior Views



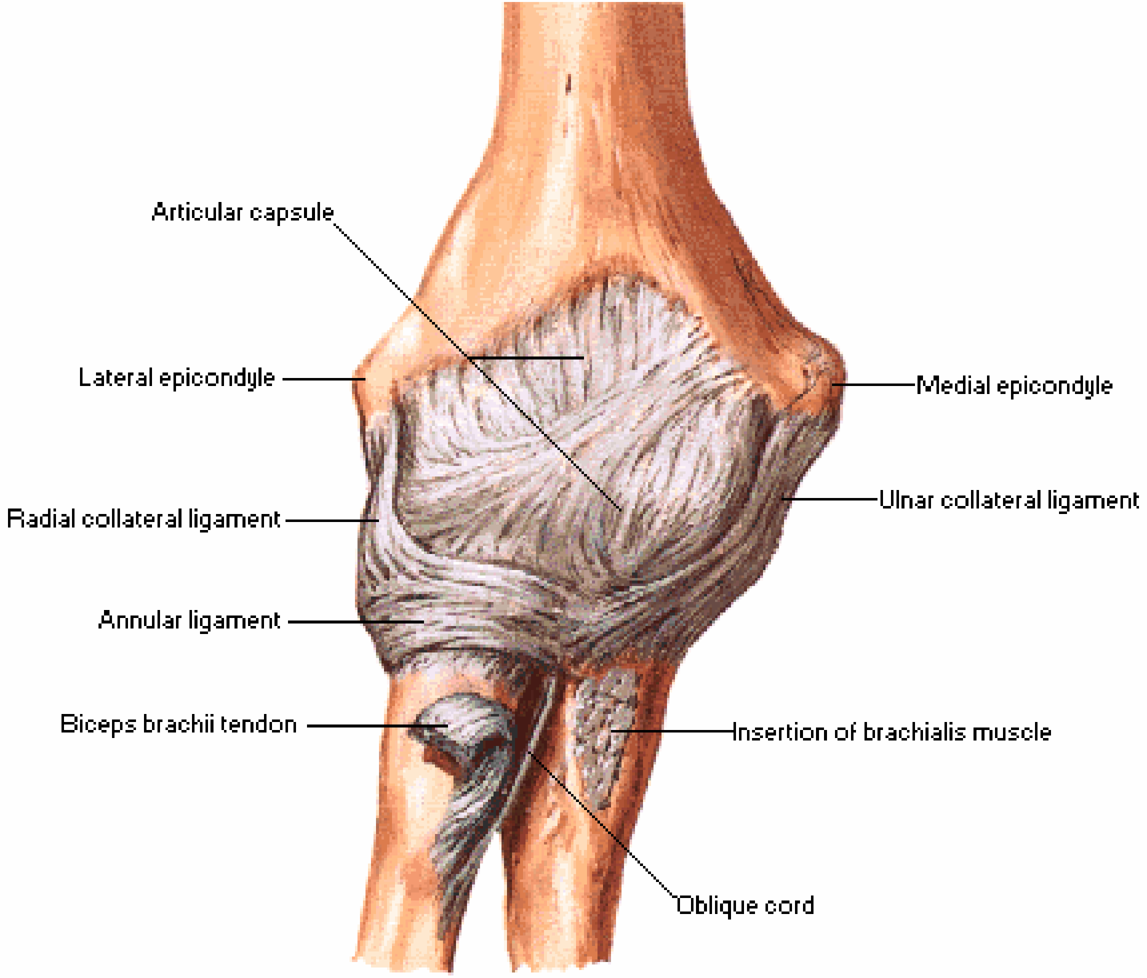
Lateral and Medial Views



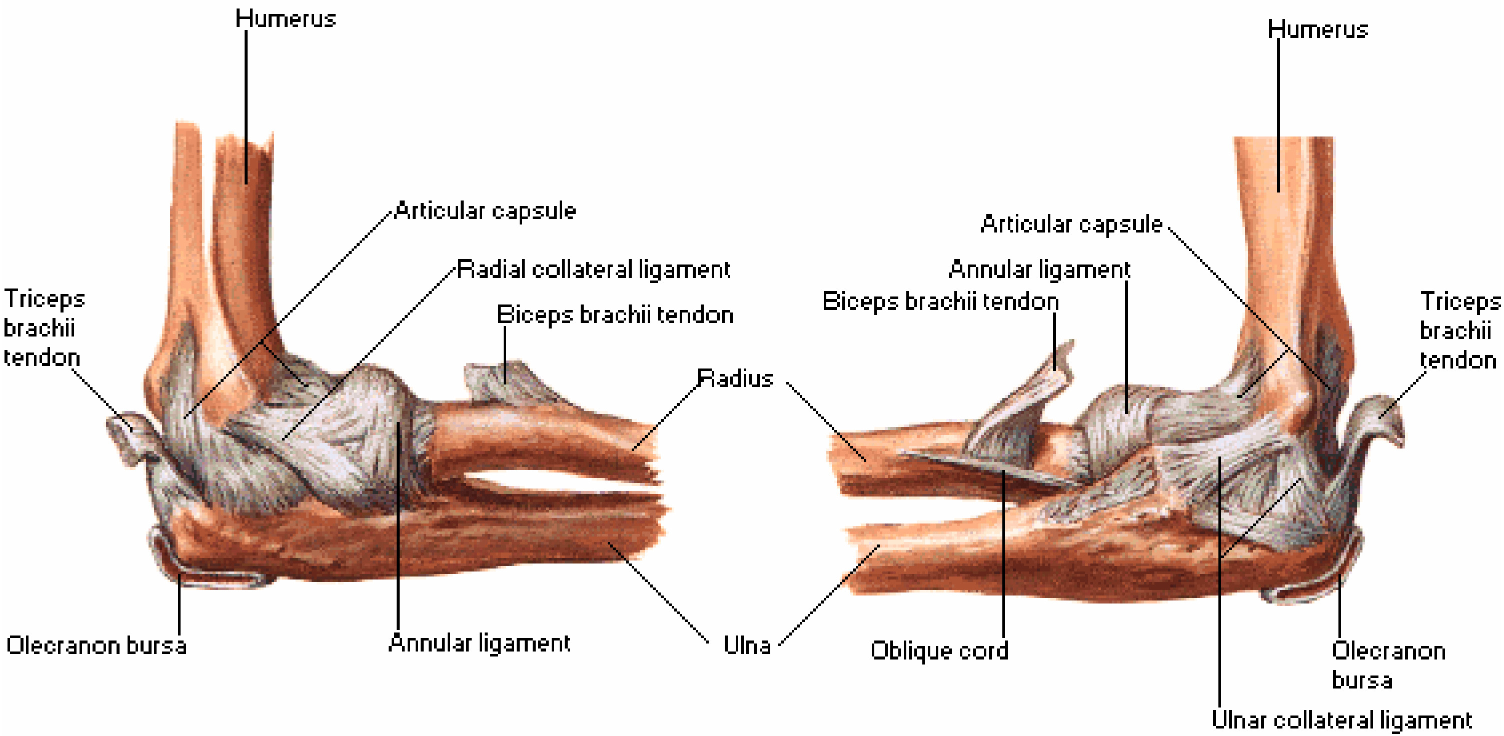
Lateral and Medial Views



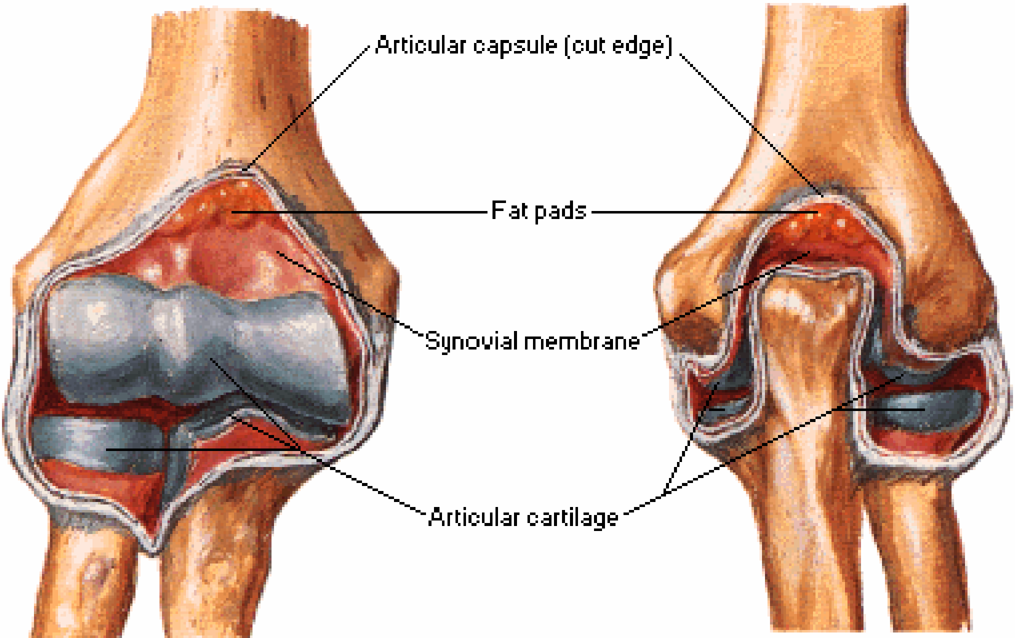
Right Elbow - Anterior View



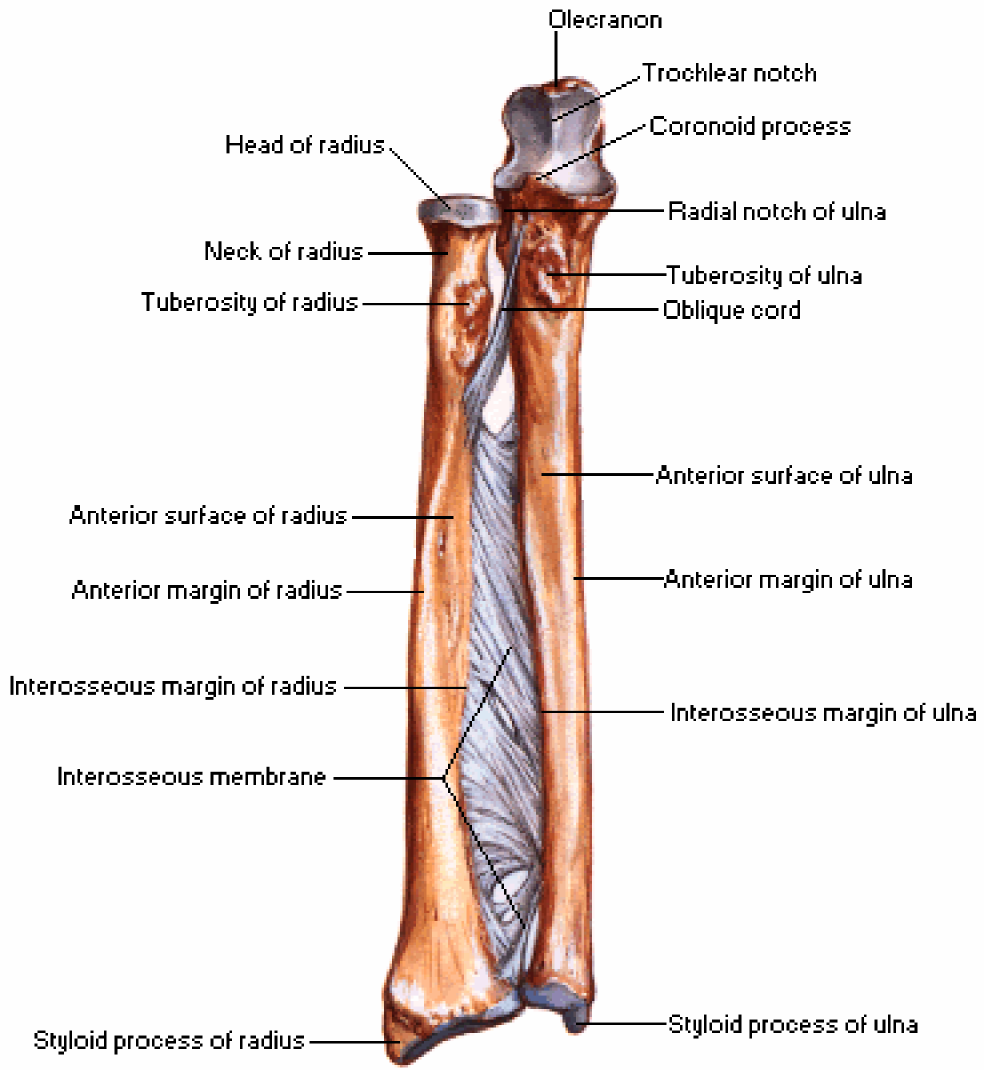
Lateral and Medial Views



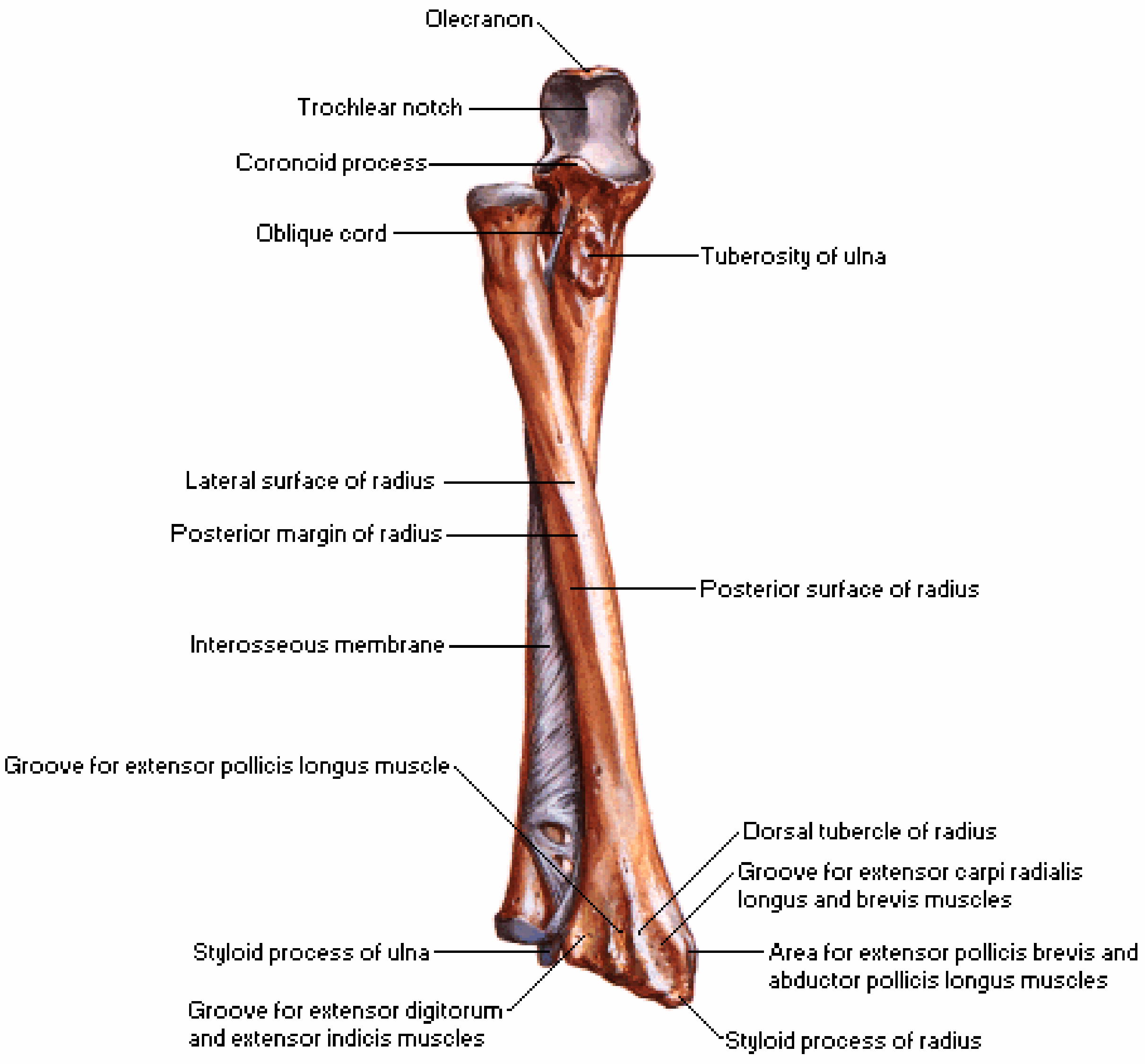
Anterior and Posterior Views



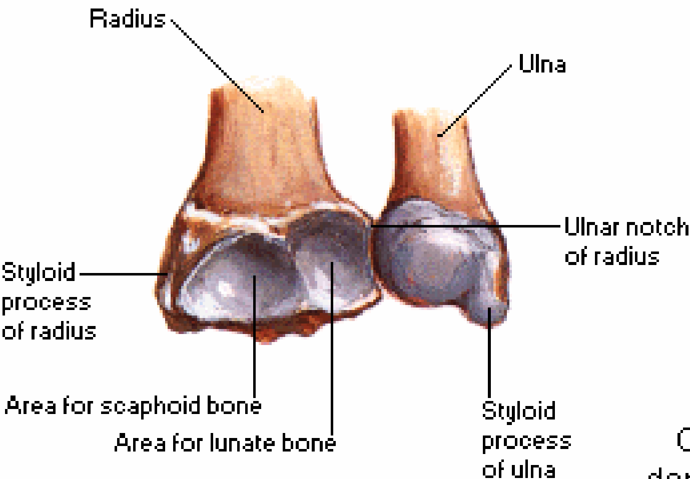
Anterior View

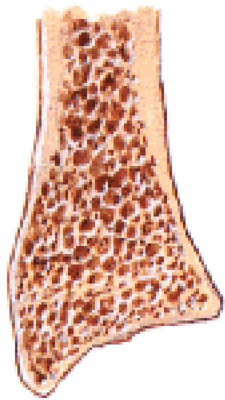


Anterior View



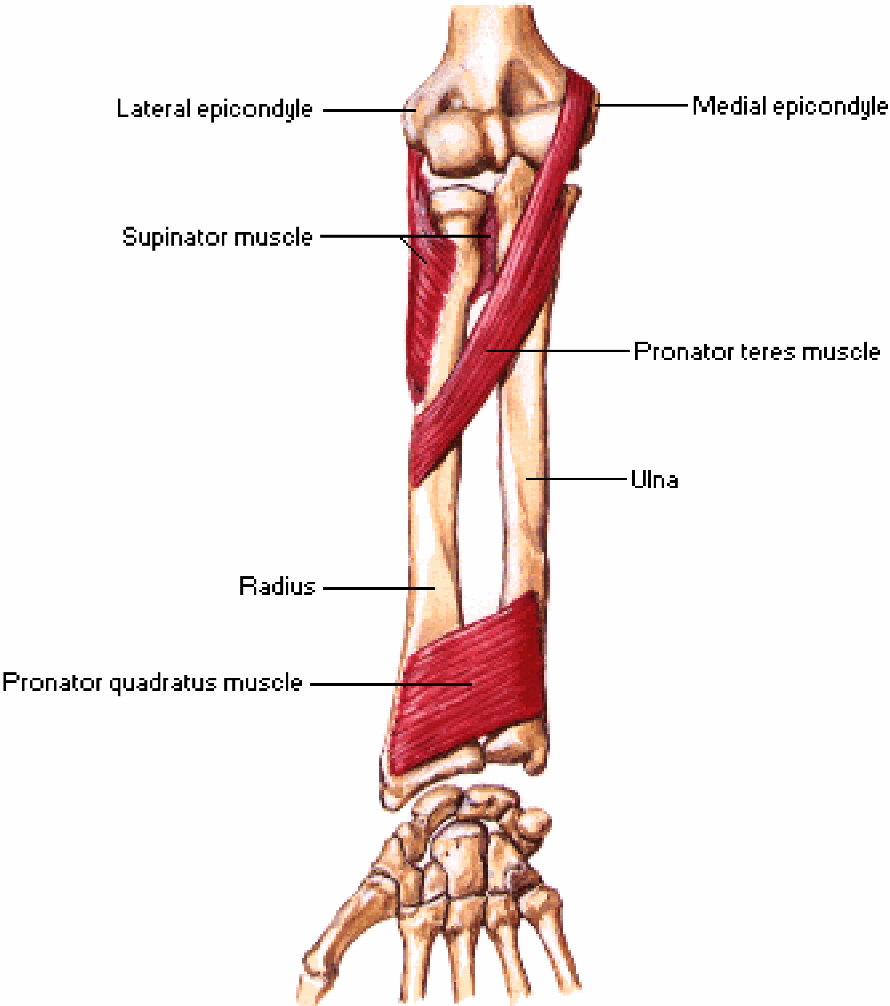
Carpal Articular Surface and Section of Radius



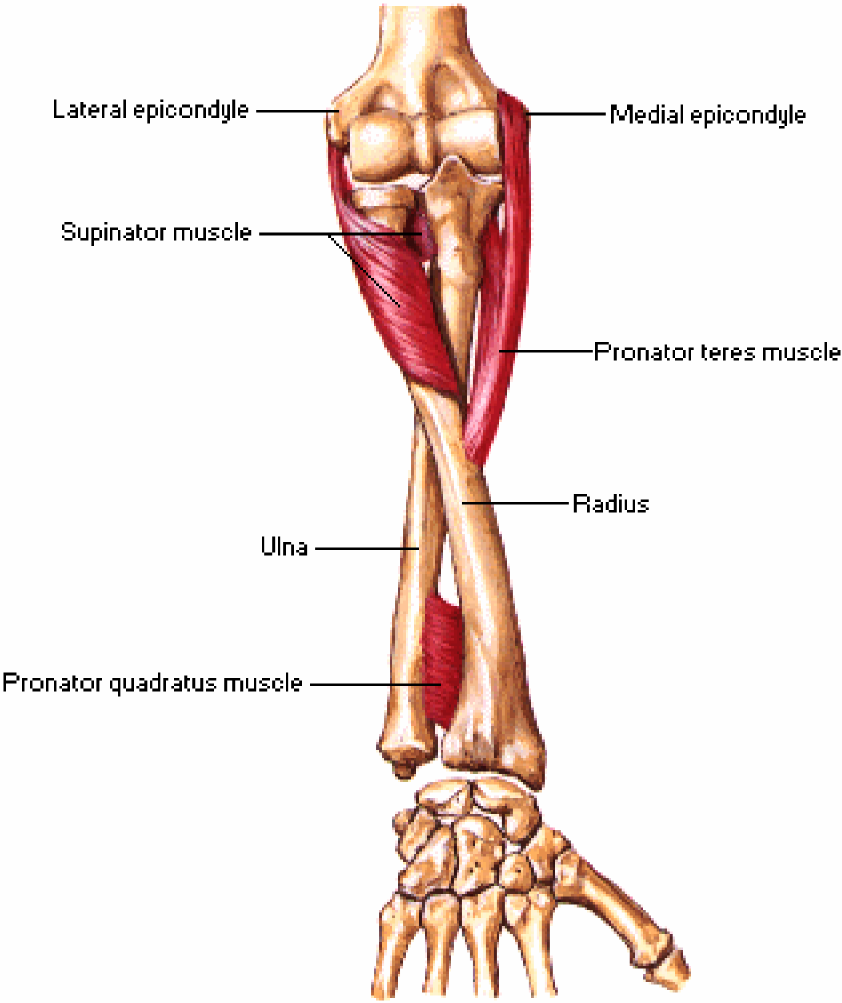


Coronal section of radius demonstrates how thickness of cortical bone of shaft diminishes to thin layer over cancellous bone at distal end

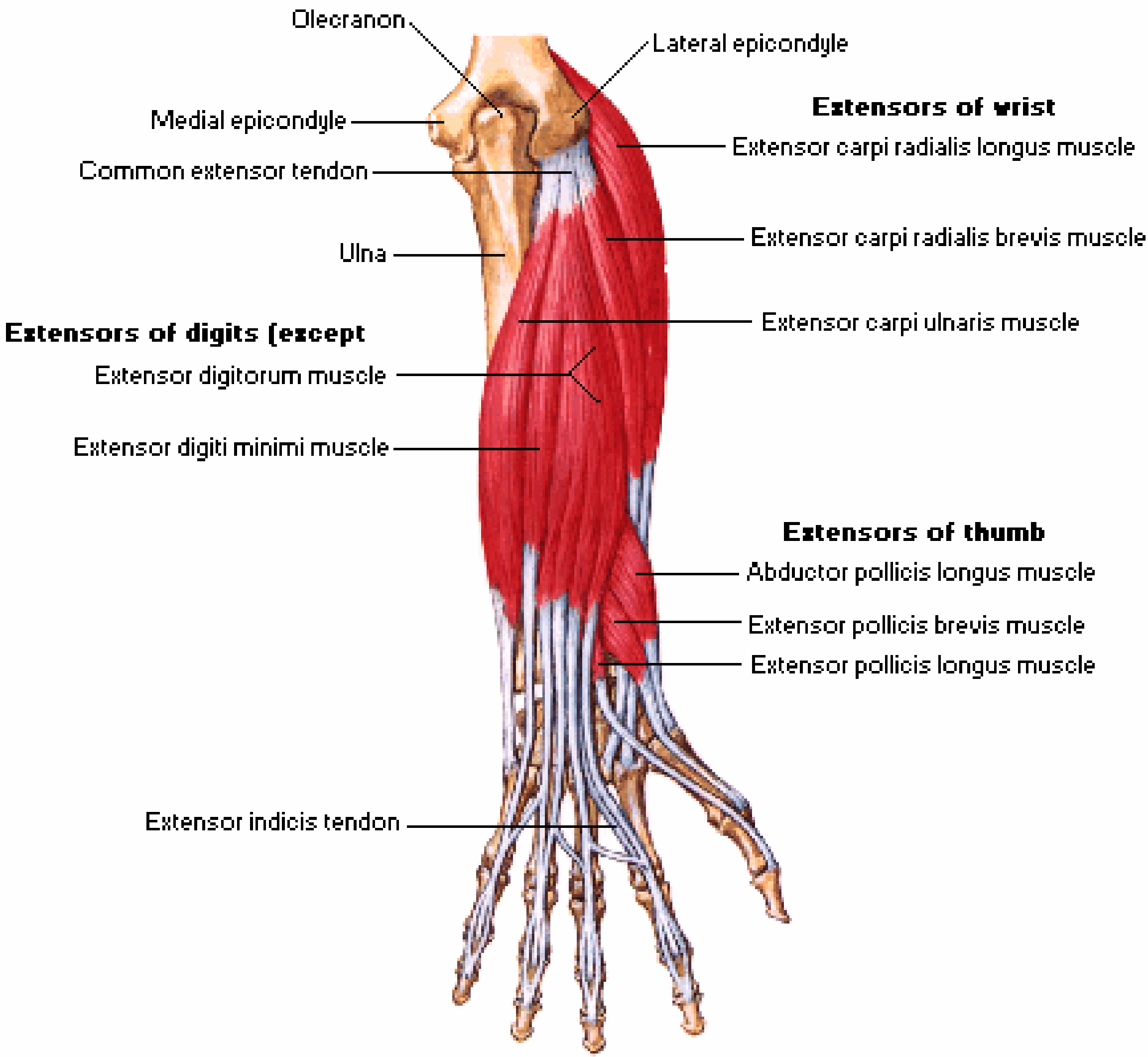
Rotators of Radius - Supination



Rotators of Radius - Pronation

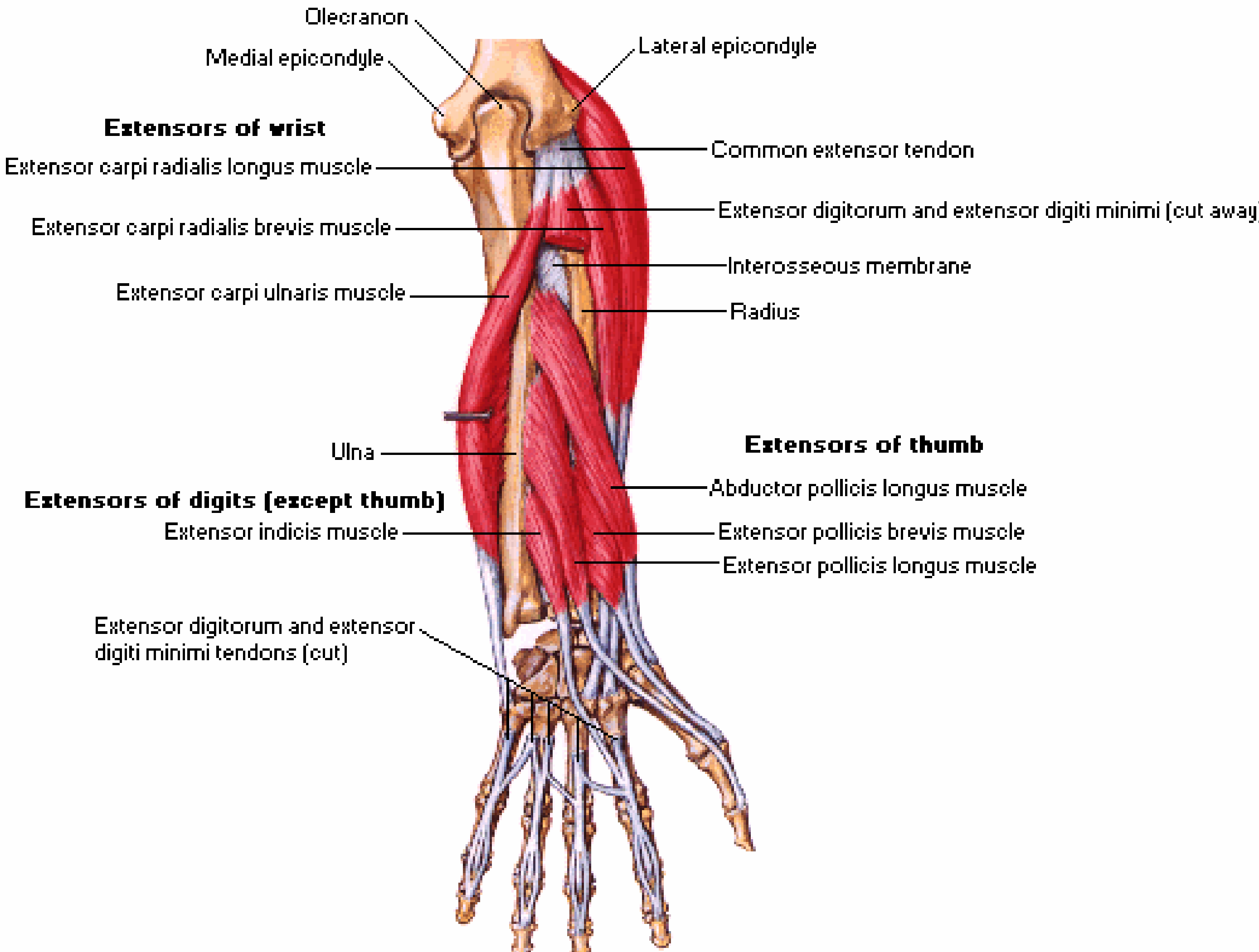


Extensors of Wrist and Digits



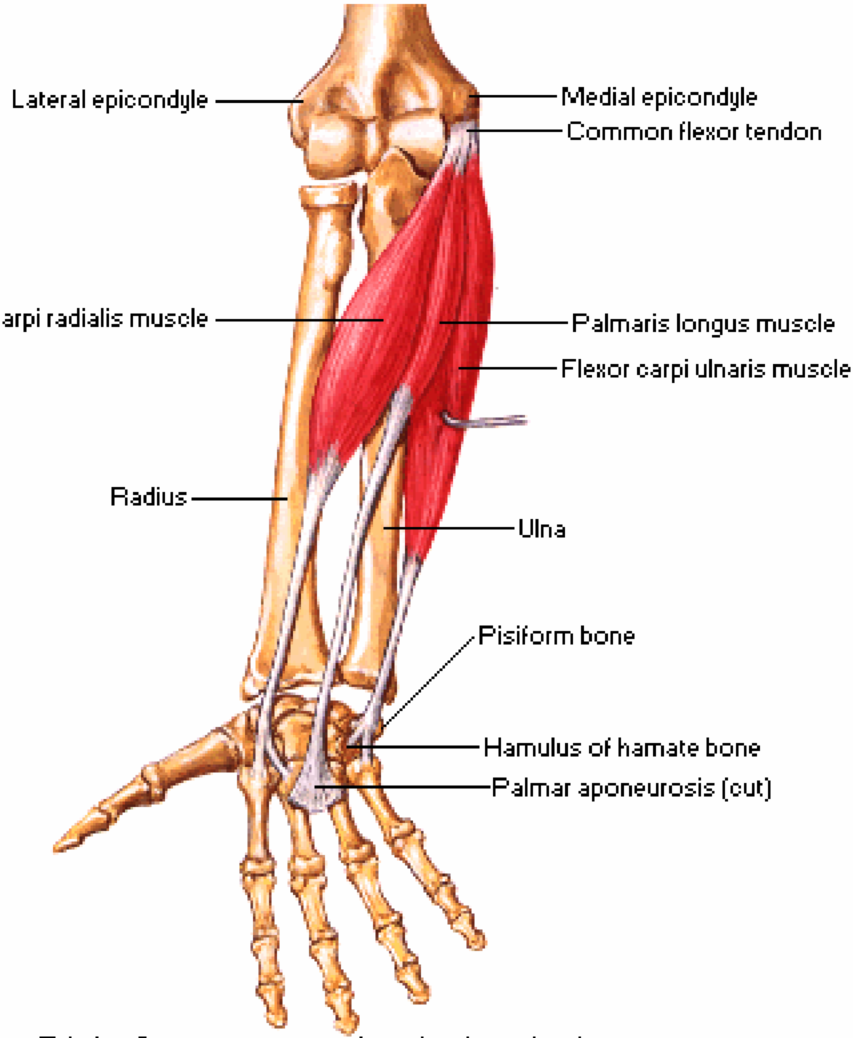
Note: anconeus muscle not shown because it is extensor of elbow

Extensors of Wrist and Digits



Note: anconeus muscle not shown because it is extensor of elbow

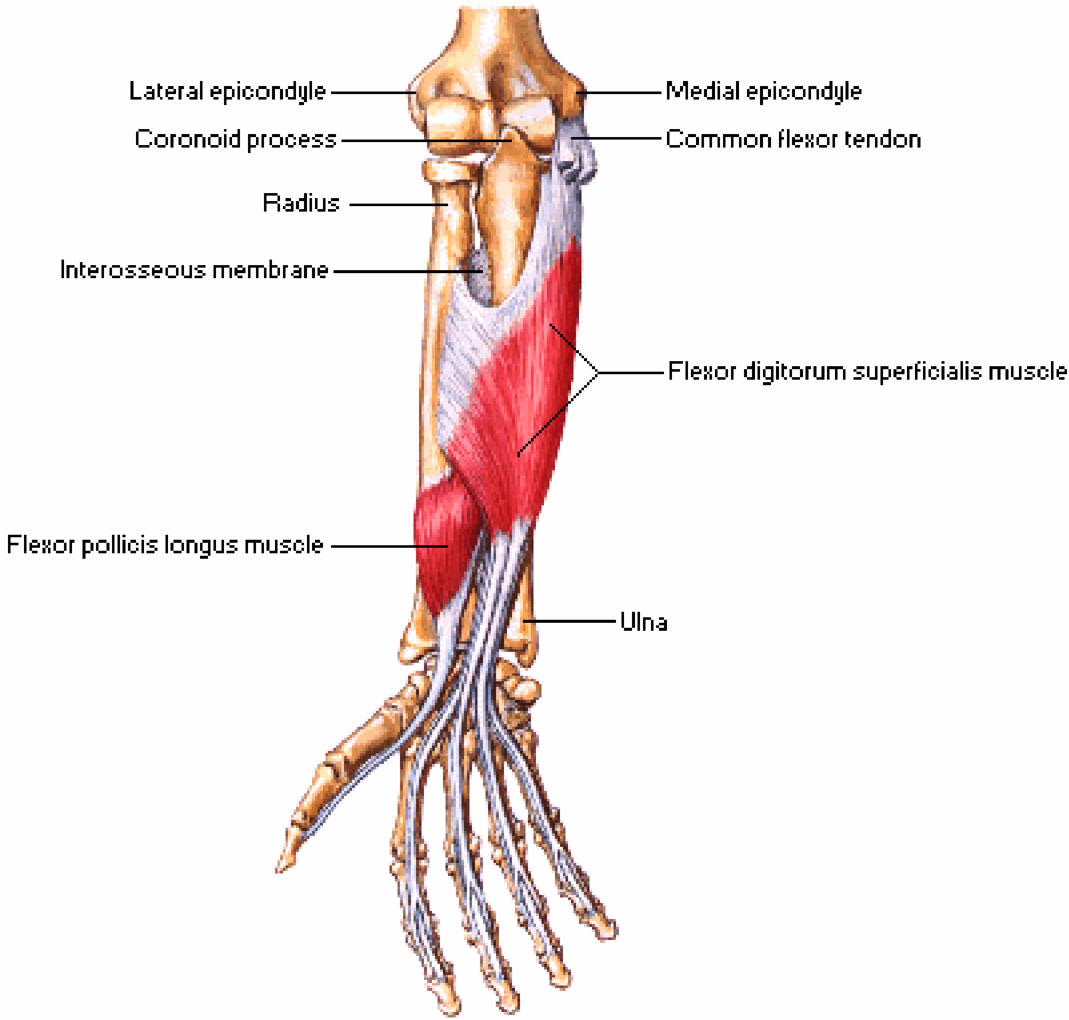
Flexors of Wrist



Note: brachioradialis muscle not shown because it is flexor of

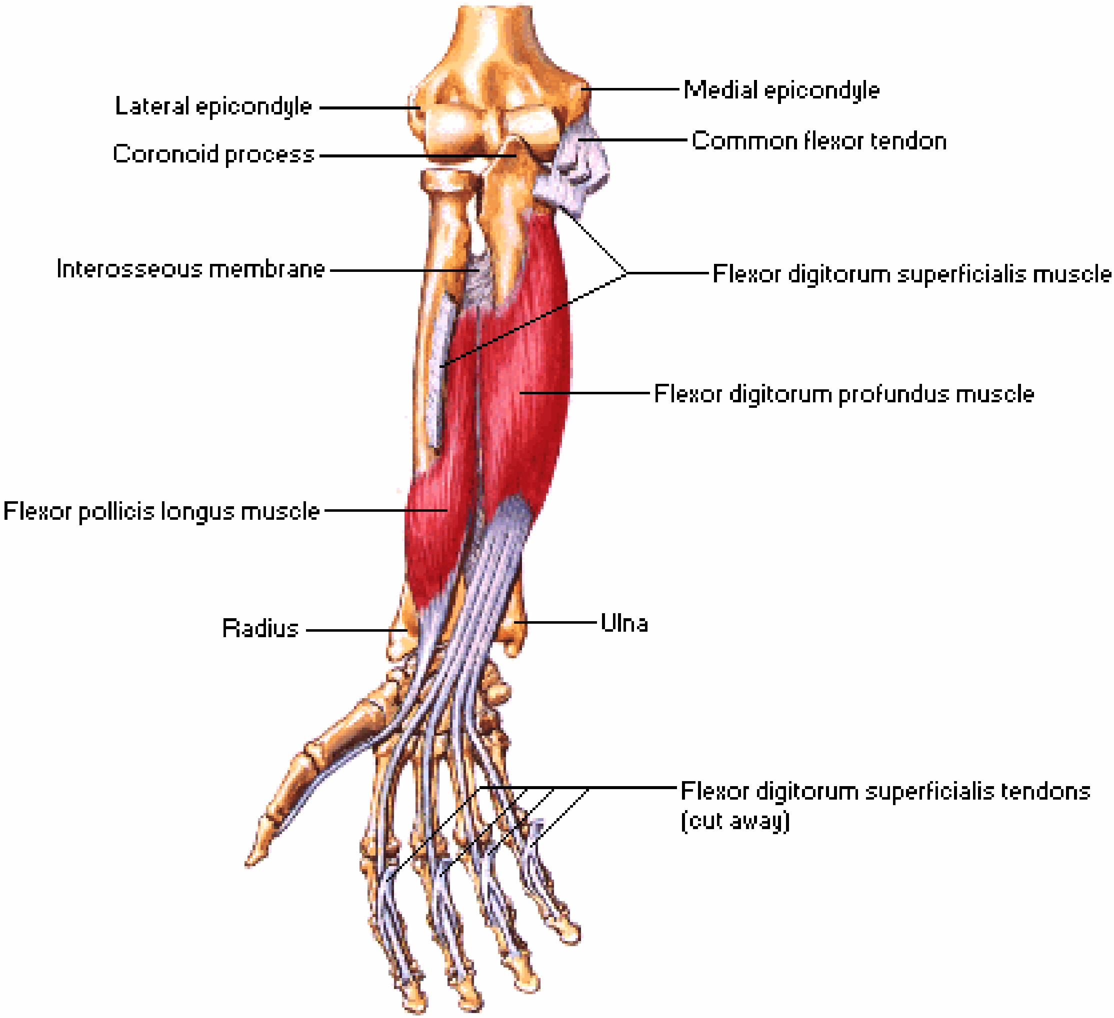
Right forearm: anterior (palmar) view

Flexors of Digits



Right forearm: anterior (palmar) view

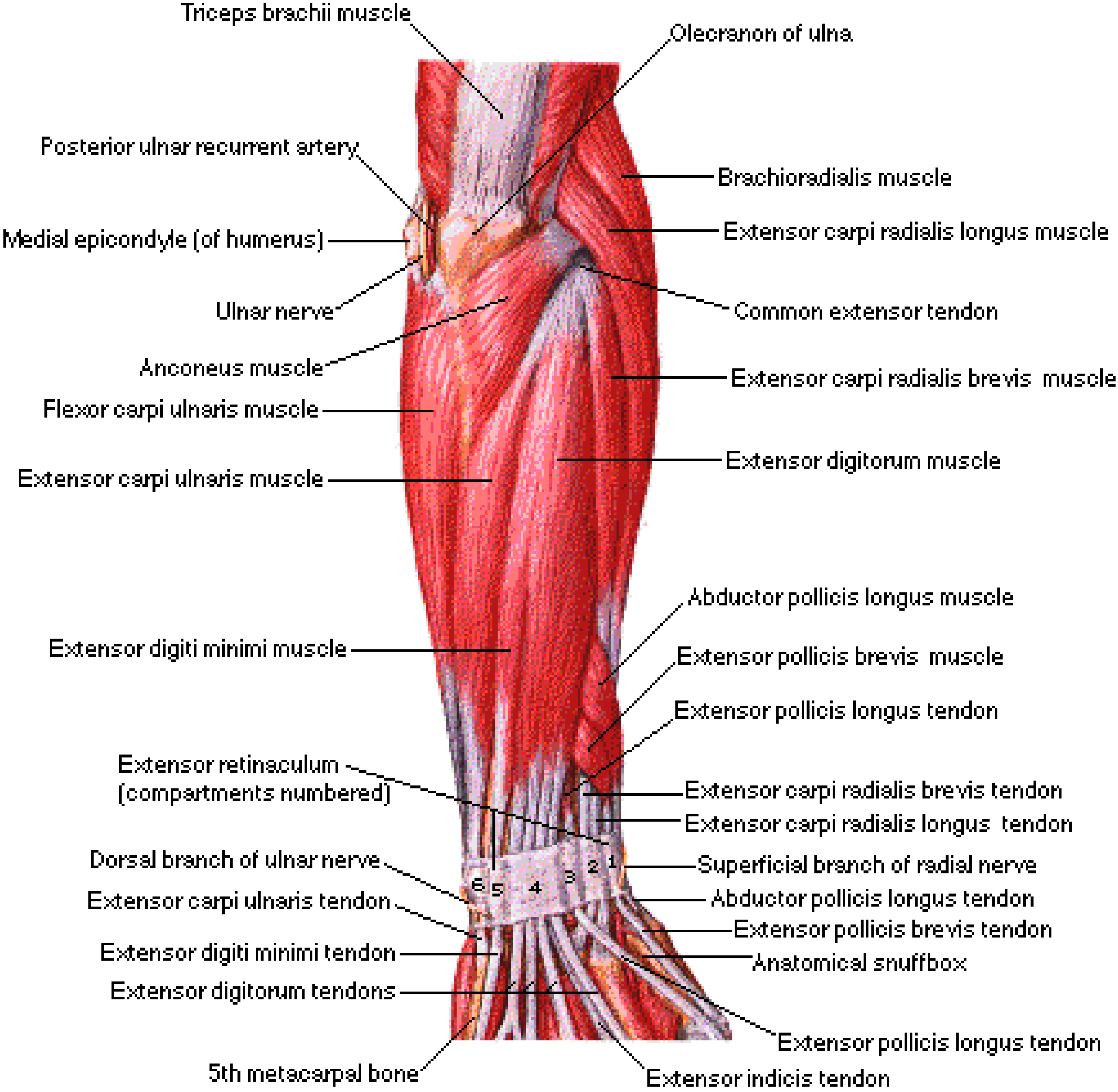
Flexors of Digits



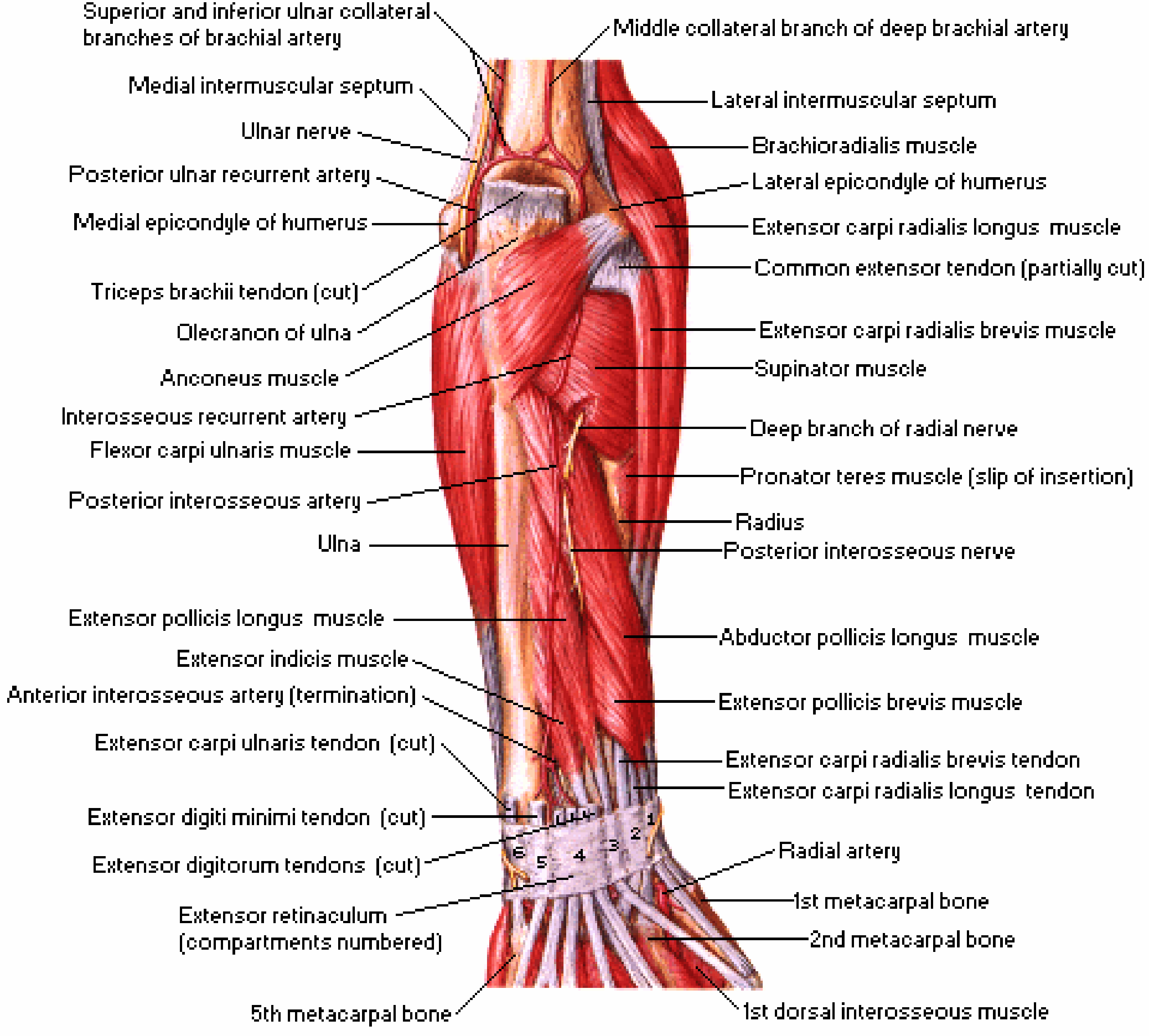
Right forearm: anterior (palmar) view

Muscles of Forearm [Superficial Layer]

Posterior View

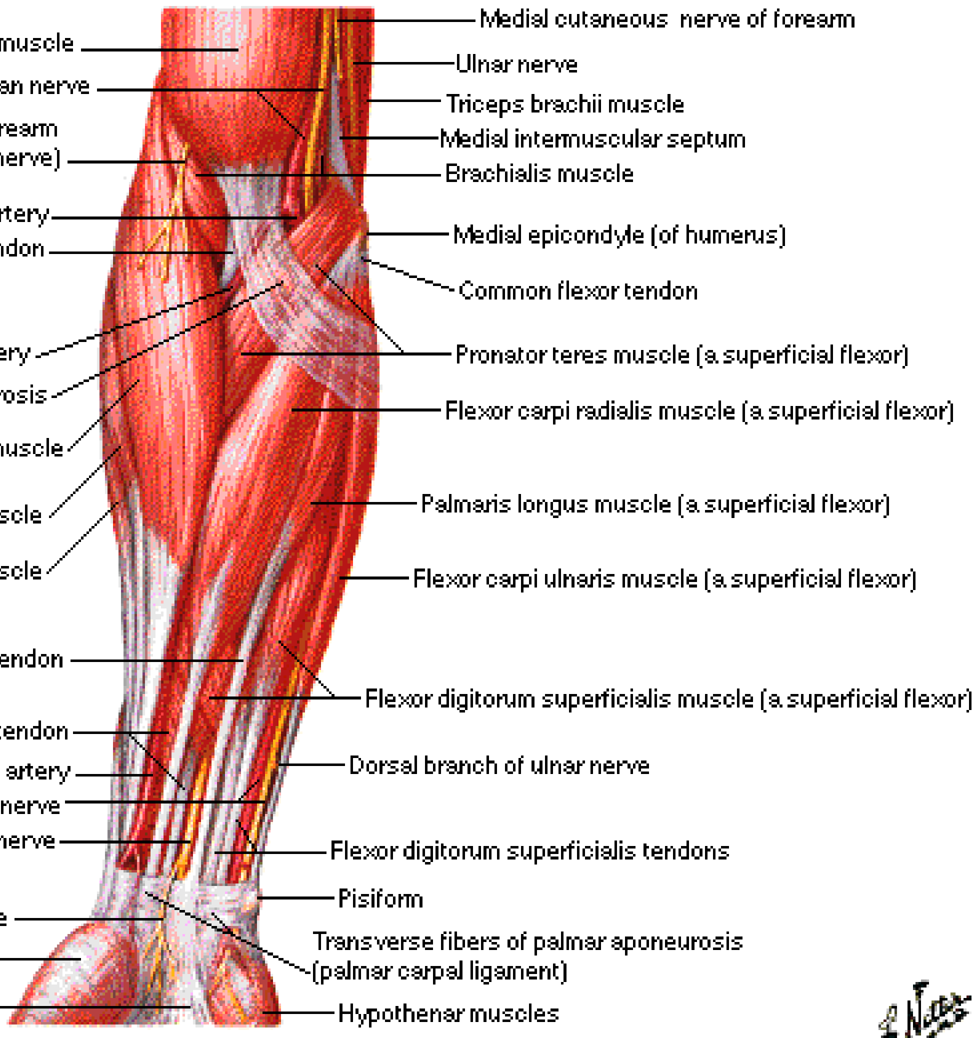


Posterior View

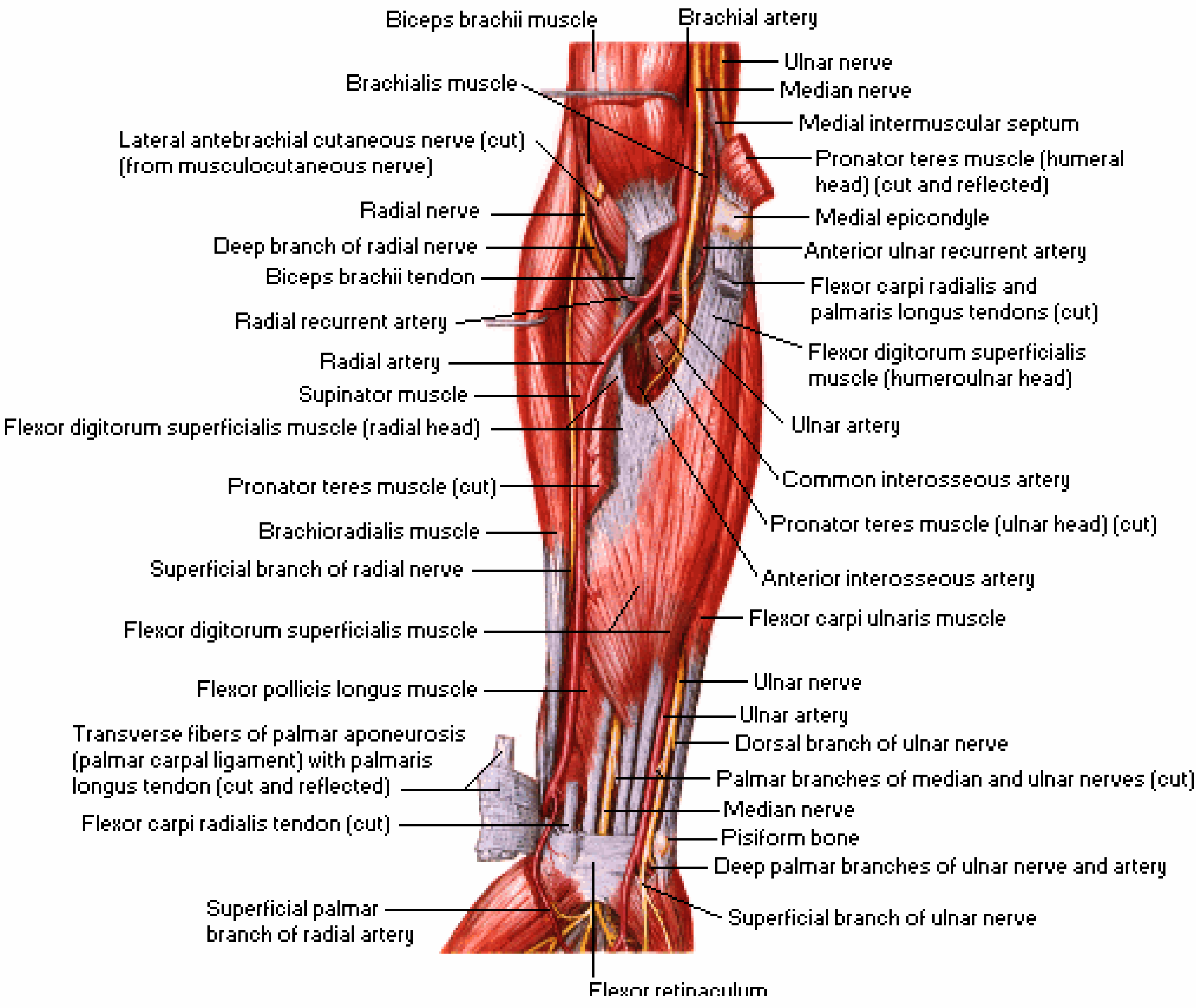


Muscles of Forearm [Superficial Layer]

Anterior View

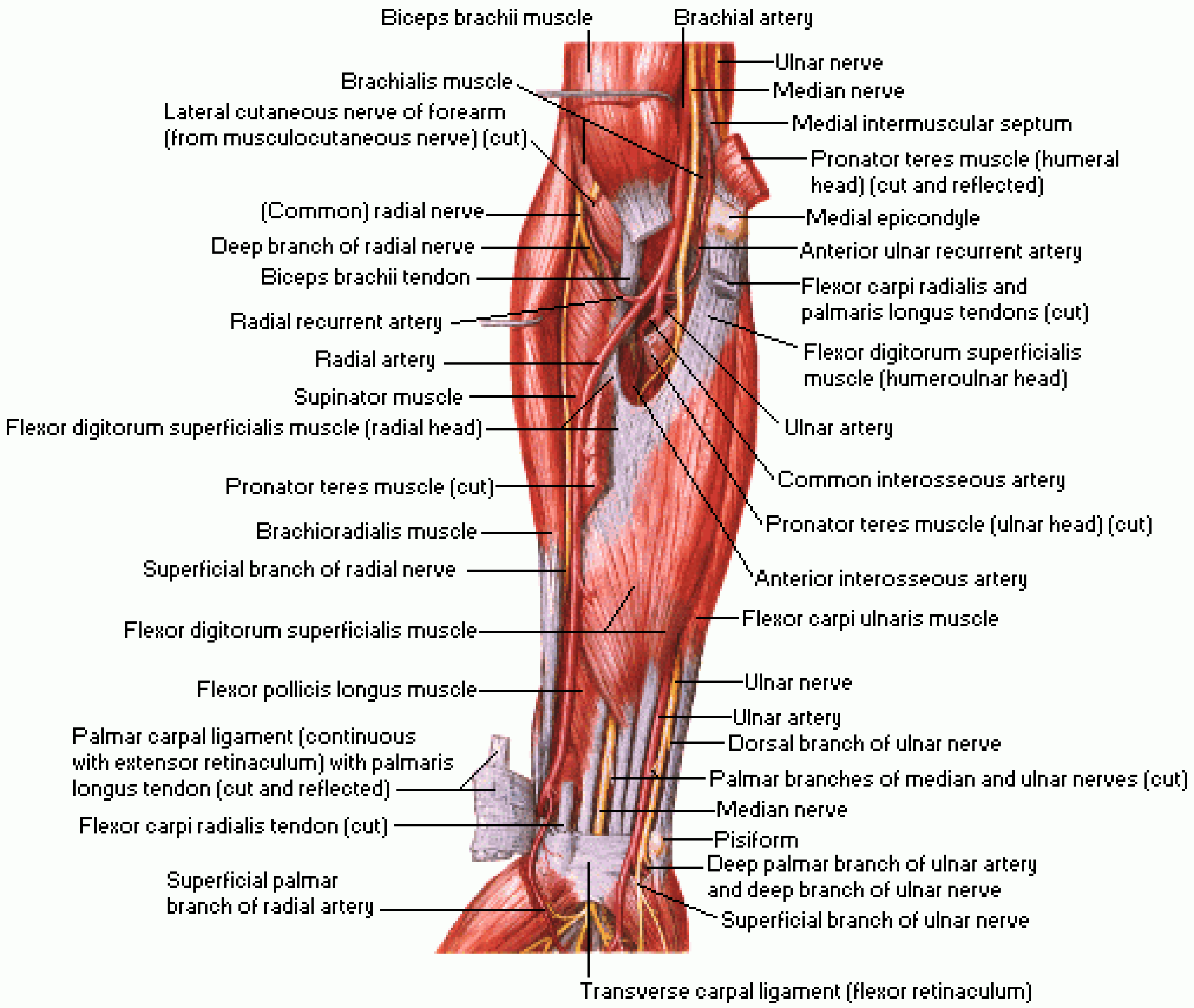


Anterior View

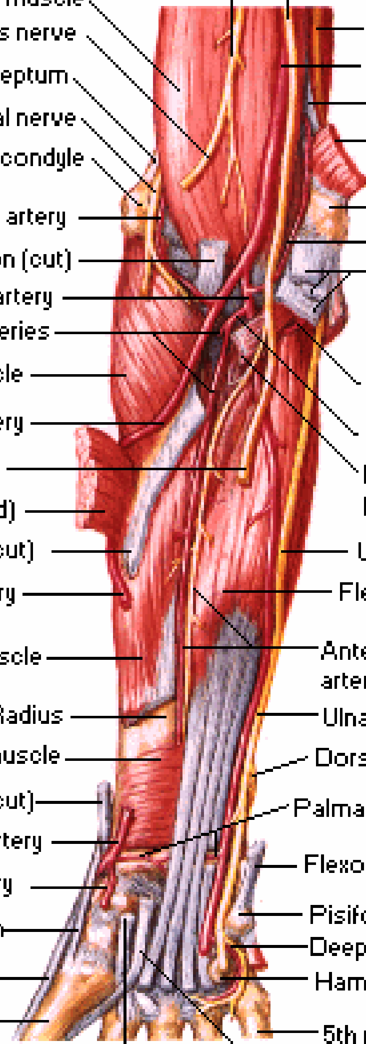


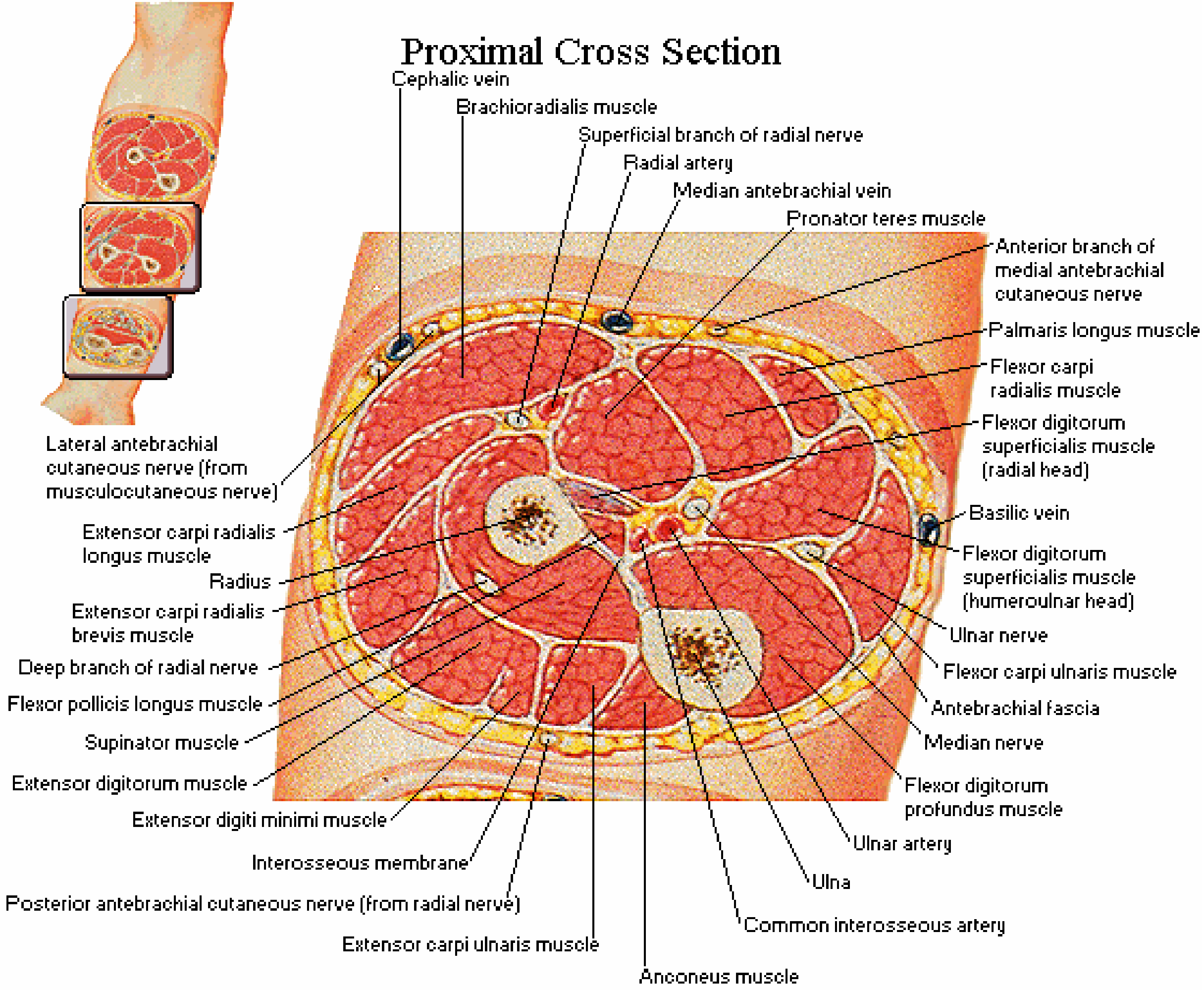
Muscles of Forearm [Intermediate Layer]

Anterior View



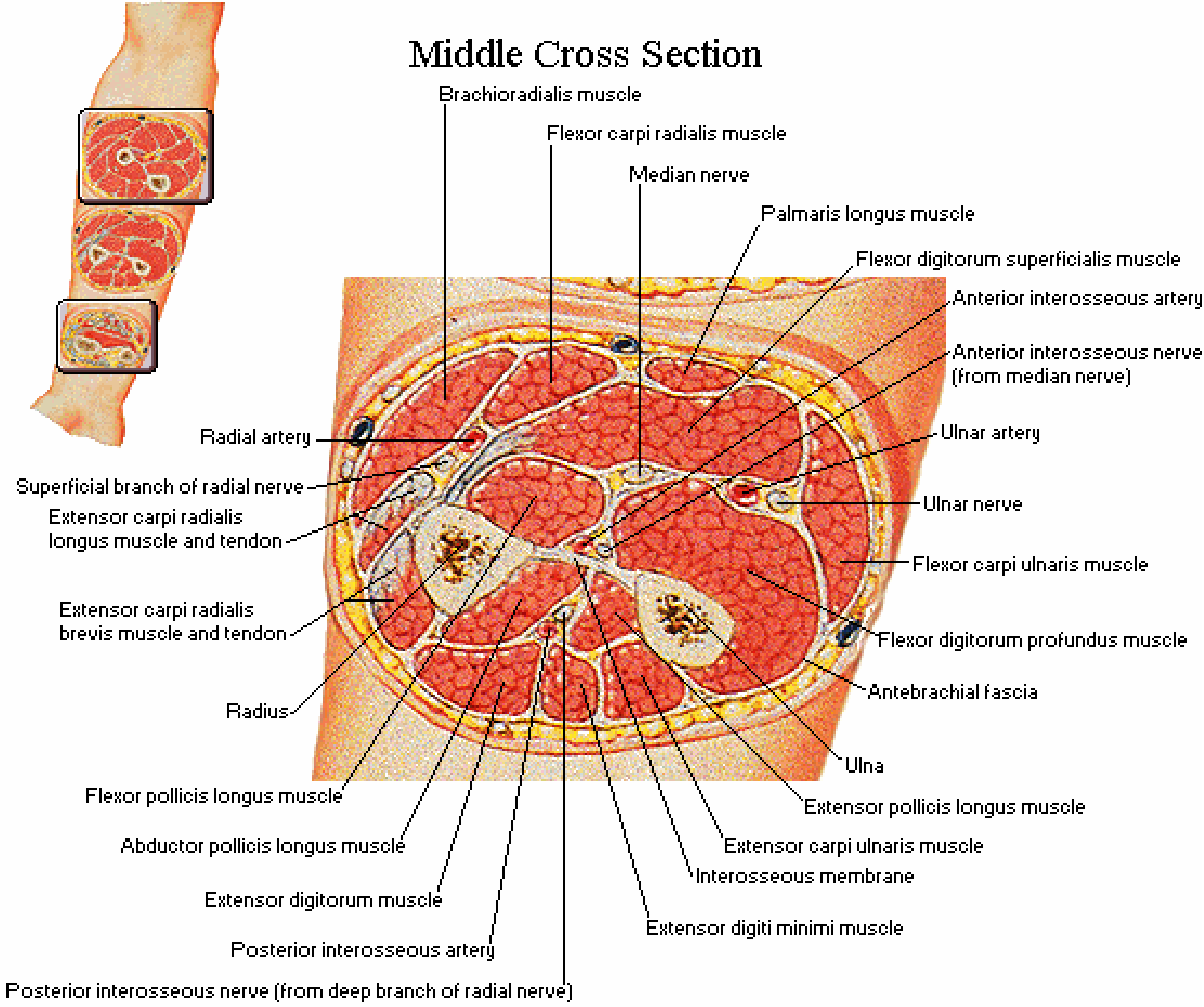
Anterior View



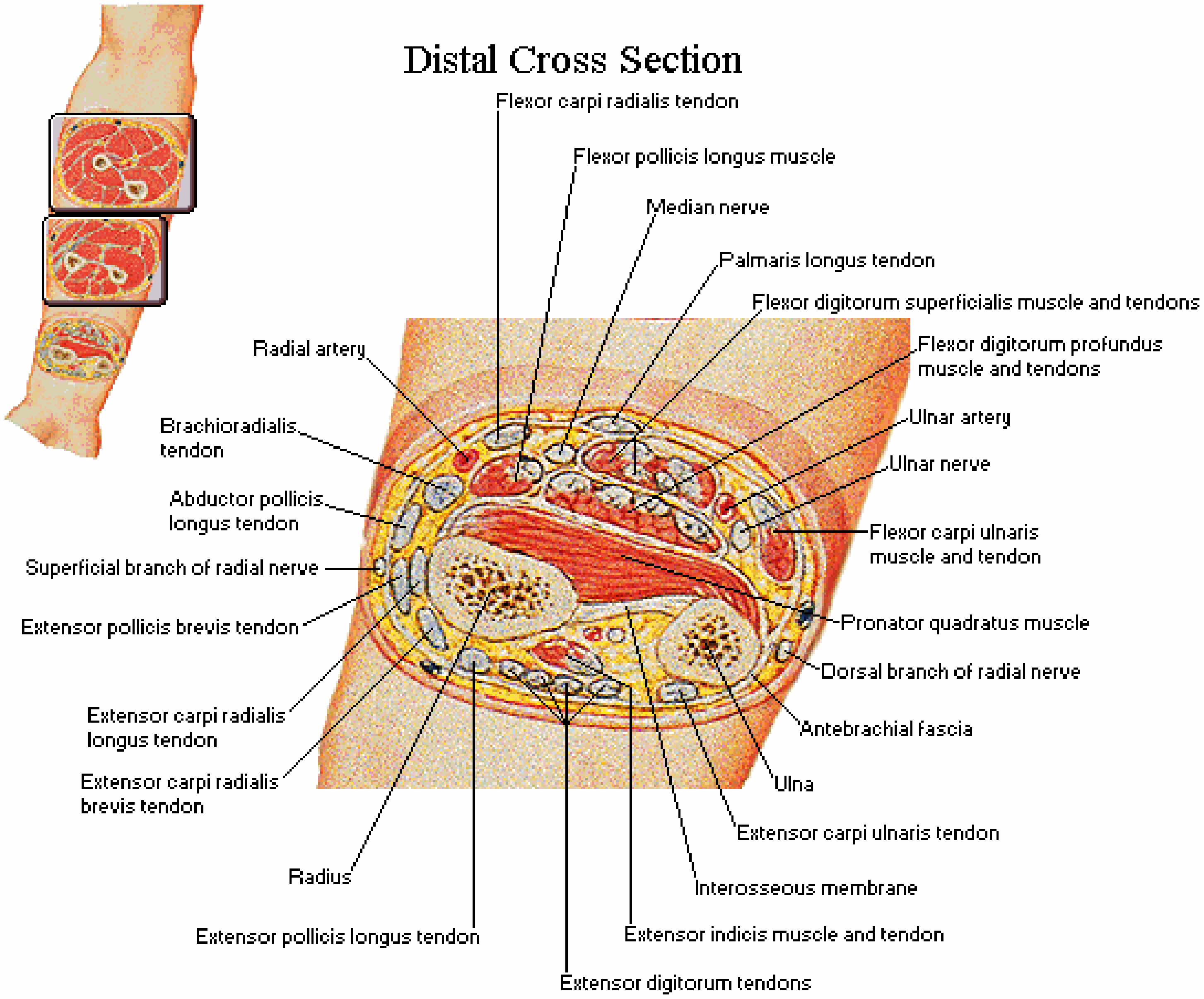


Proximal Cross Section
Cephalic vein
Brachioradialis muscle
Superficial branch of radial nerve
Radial artery
Median antebrachial vein
Pronator teres muscle
Anterior branch of medial antebrachial cutaneous nerve
Palmaris longus muscle
Flexor carpi radialis muscle
Flexor digitorum superficialis muscle (radial head)
Basilic vein
Flexor digitorum superficialis muscle (humeroulnar head)
Ulnar nerve
Flexor carpi ulnaris muscle
Antebrachial fascia
Median nerve
Flexor digitorum profundus muscle
Ulnar artery
Ulna
Common interosseous artery
Anconeus muscle
Extensor carpi ulnaris muscle
Posterior antebrachial cutaneous nerve (from radial nerve)
Interosseous membrane
Extensor digiti minimi muscle
Extensor digitorum muscle
Supinator muscle
Flexor pollicis longus muscle
Deep branch of radial nerve
Extensor carpi radialis brevis muscle
Radius
Extensor carpi radialis longus muscle
Lateral antebrachial cutaneous nerve (from musculocutaneous nerve)

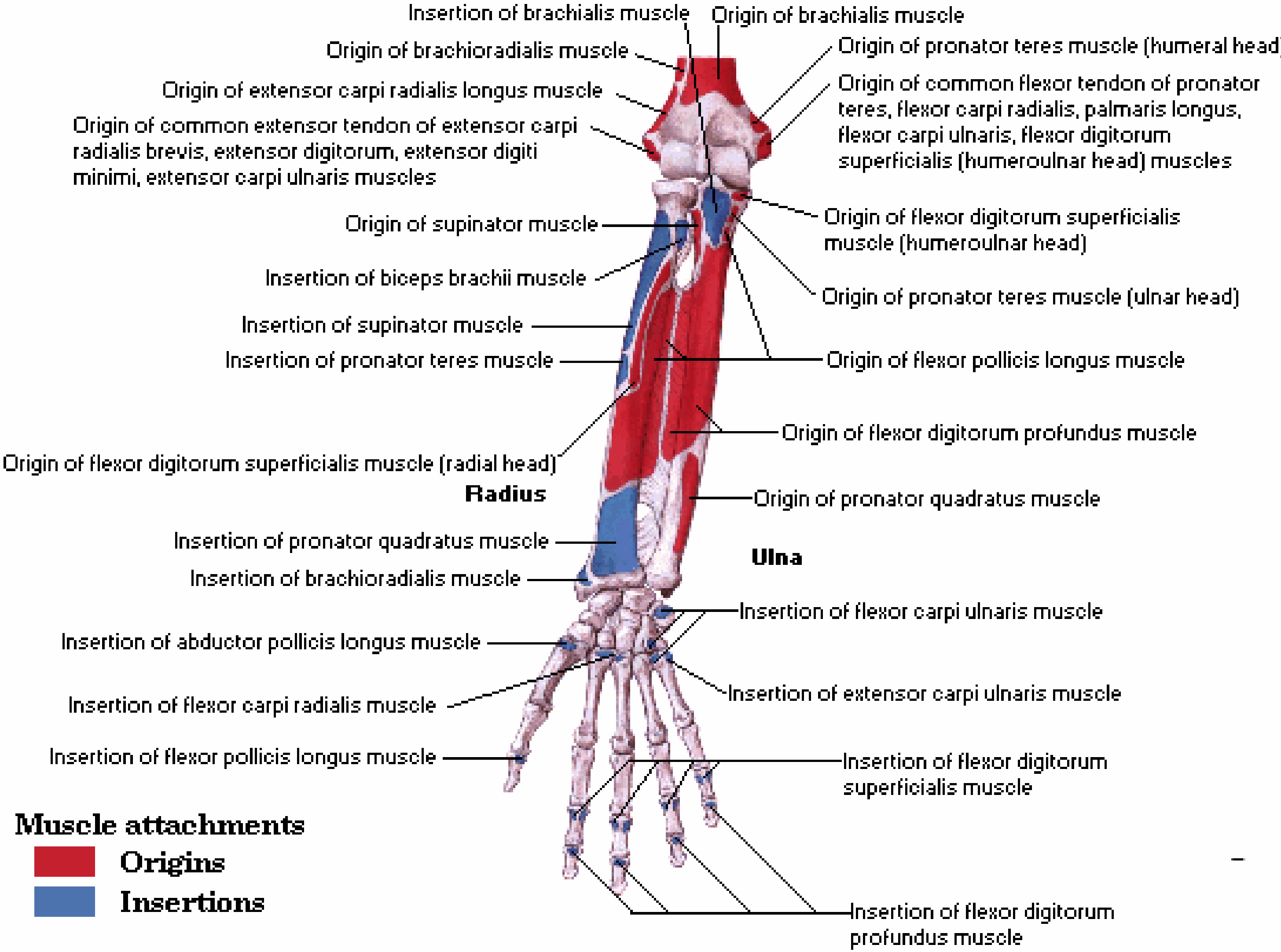
Middle Cross Section



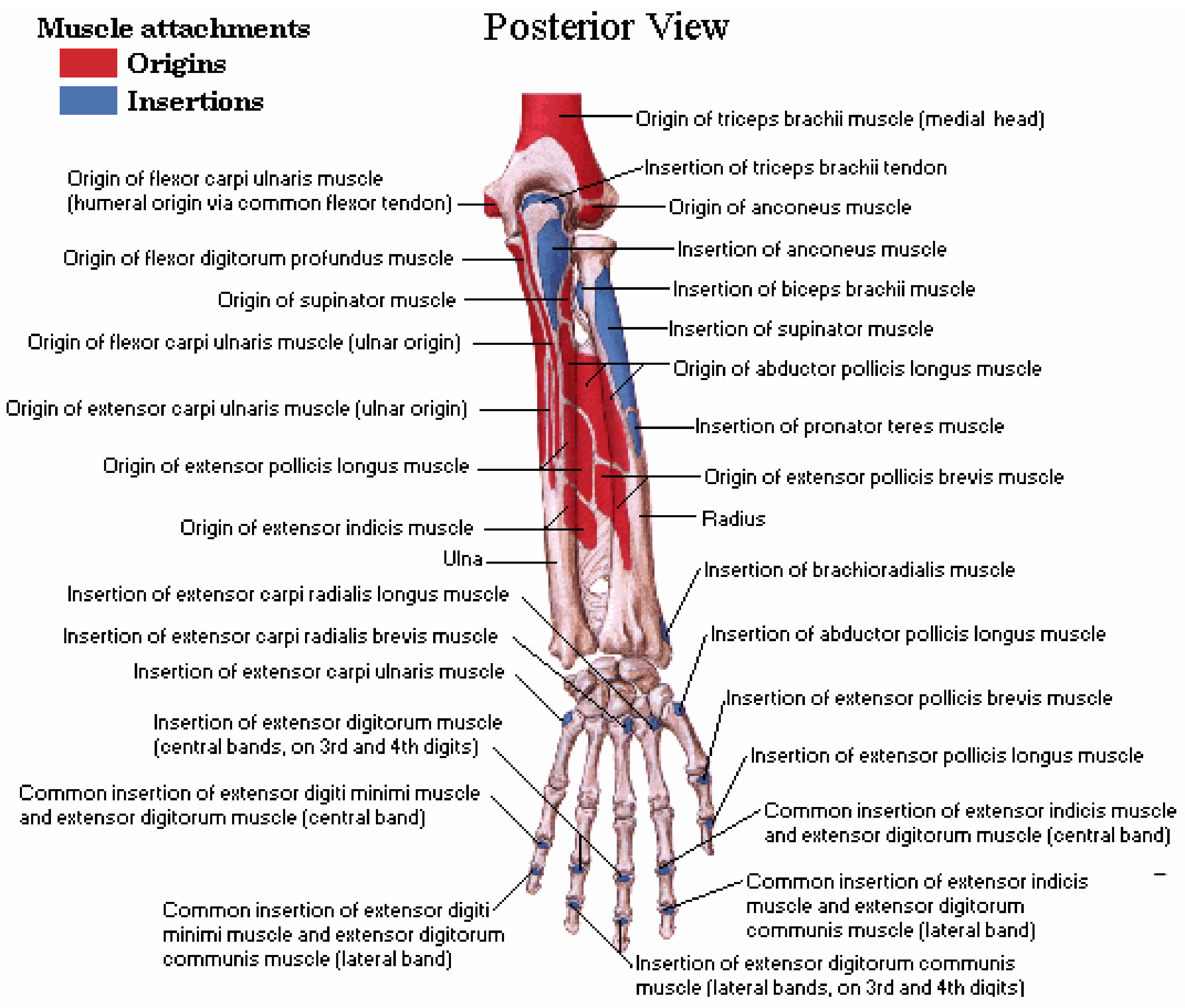
Distal Cross Section



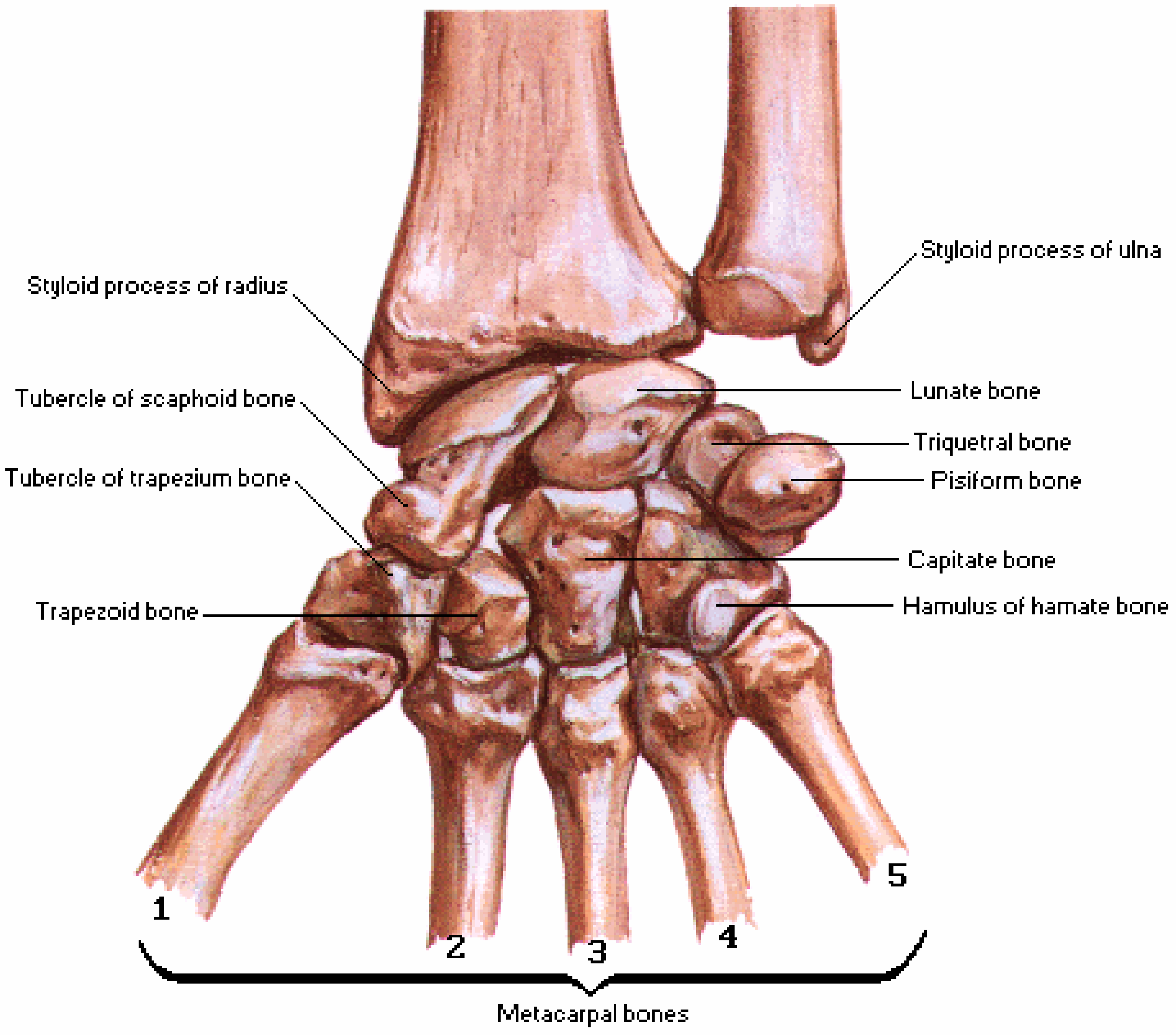
Anterior View



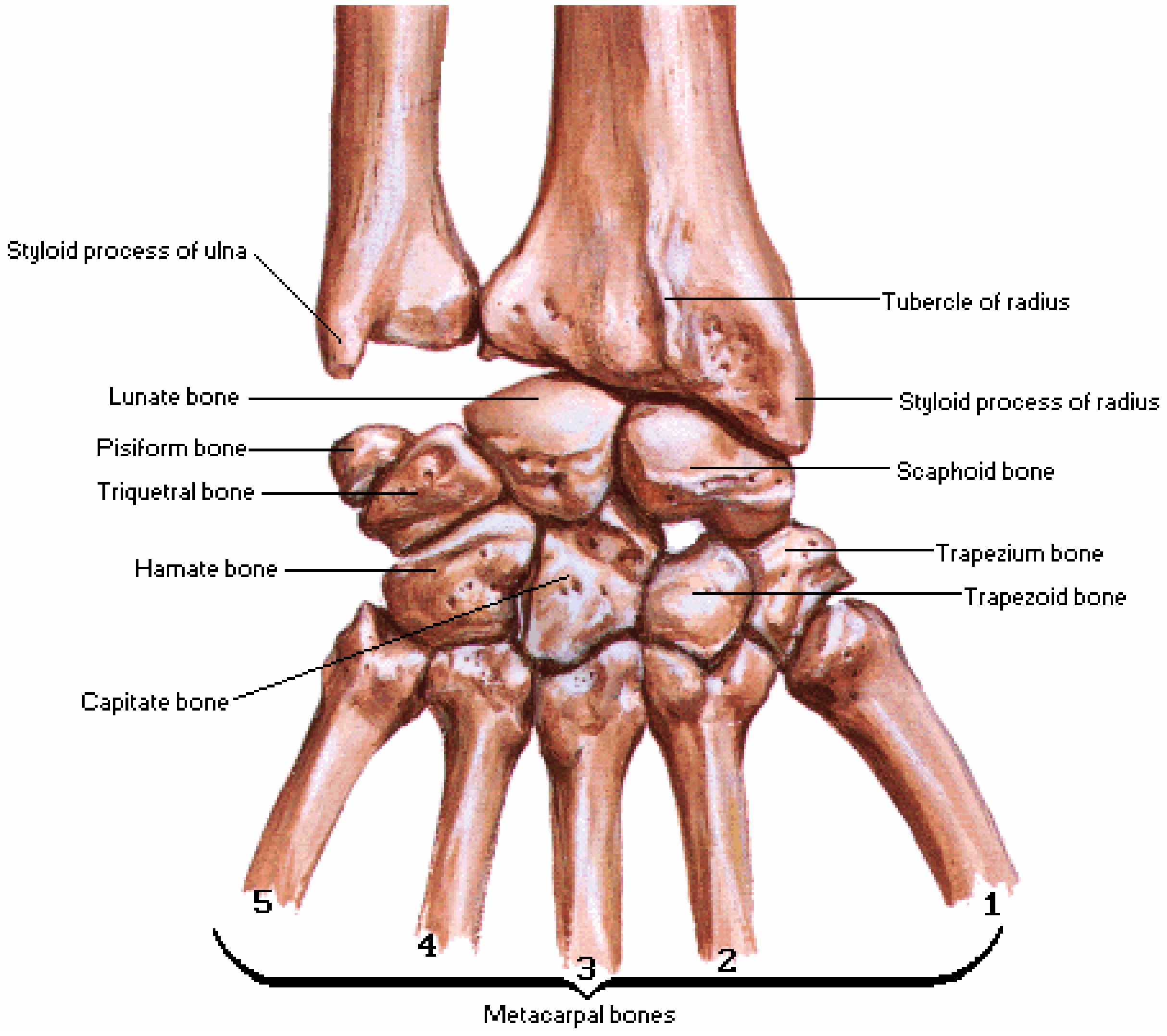
Note: attachments of intrinsic muscles of hand not shown


Muscle attachments
Origins
Insertions
Posterior View
Origin of triceps brachii muscle (medial head)
Insertion of triceps brachii tendon
Origin of flexor carpi ulnaris muscle (humeral origin via common flexor tendon)
Origin of anconeus muscle
Insertion of anconeus muscle
Origin of flexor digitorum profundus muscle
Insertion of biceps brachii muscle
Origin of supinator muscle
Insertion of supinator muscle
Origin of flexor carpi ulnaris muscle (ulnar origin)
Origin of abductor pollicis longus muscle
Origin of extensor carpi ulnaris muscle (ulnar origin)
Insertion of pronator teres muscle
Origin of extensor pollicis longus muscle
Origin of extensor pollicis brevis muscle
Radius
Origin of extensor indicis muscle
Ulna
Insertion of brachioradialis muscle
Insertion of extensor carpi radialis longus muscle
Insertion of abductor pollicis longus muscle
Insertion of extensor carpi radialis brevis muscle
Insertion of extensor carpi ulnaris muscle
Insertion of extensor pollicis brevis muscle
Insertion of extensor digitorum muscle (central bands, on 3rd and 4th digits)
Insertion of extensor pollicis longus muscle
Common insertion of extensor digiti minimi muscle and extensor digitorum muscle (central band)
Common insertion of extensor indicis muscle and extensor digitorum muscle (central band)
Common insertion of extensor indicis muscle and extensor digitorum communis muscle (lateral band)
Common insertion of extensor digiti minimi muscle and extensor digitorum communis muscle (lateral band)
Insertion of extensor digitorum communis muscle (lateral bands, on 3rd and 4th digits)

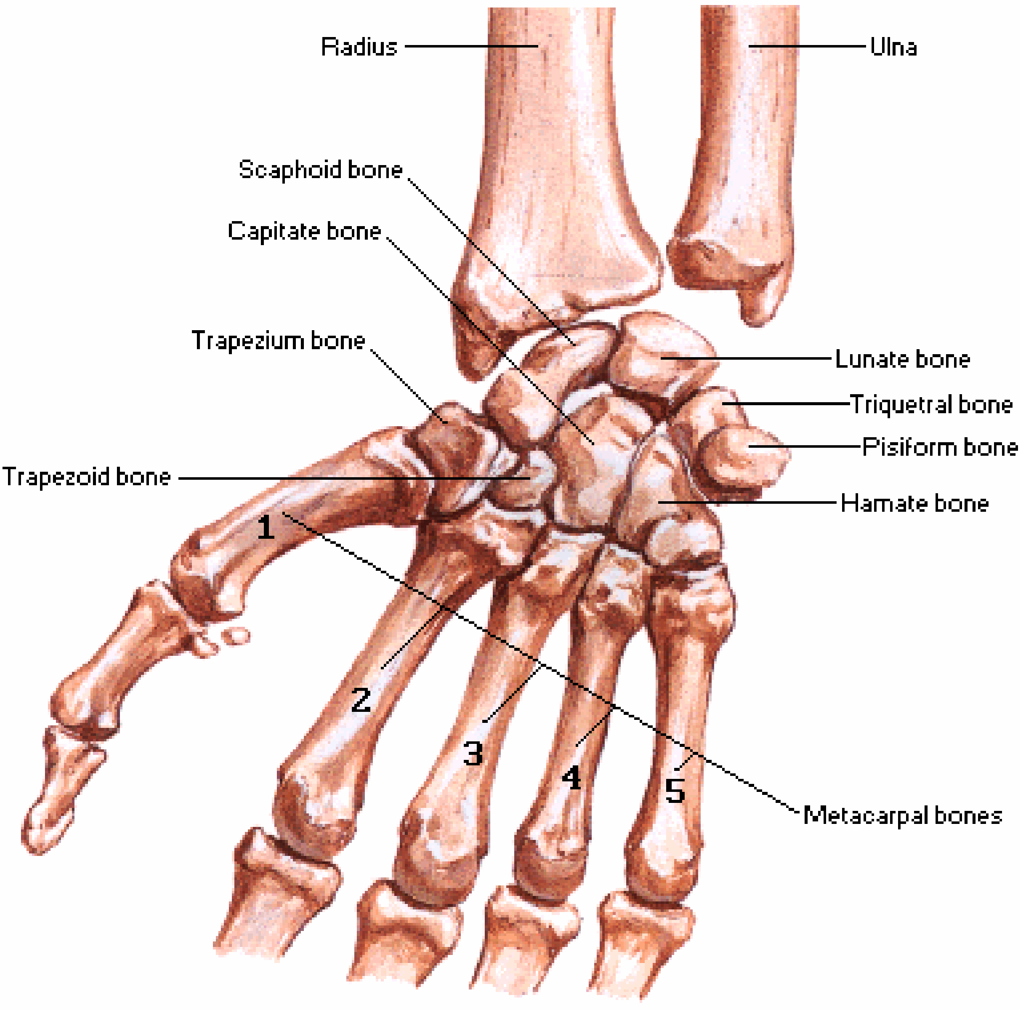
Anterior [Palmar] View



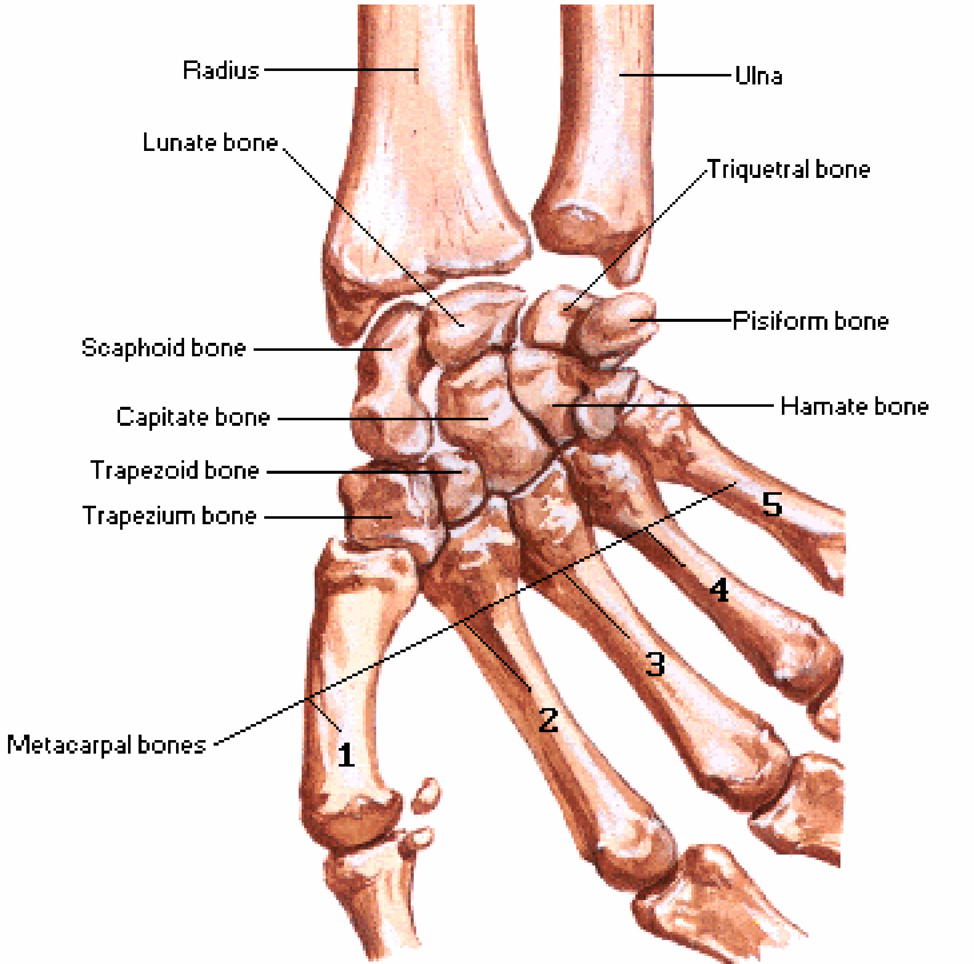
Posterior [Dorsal] View



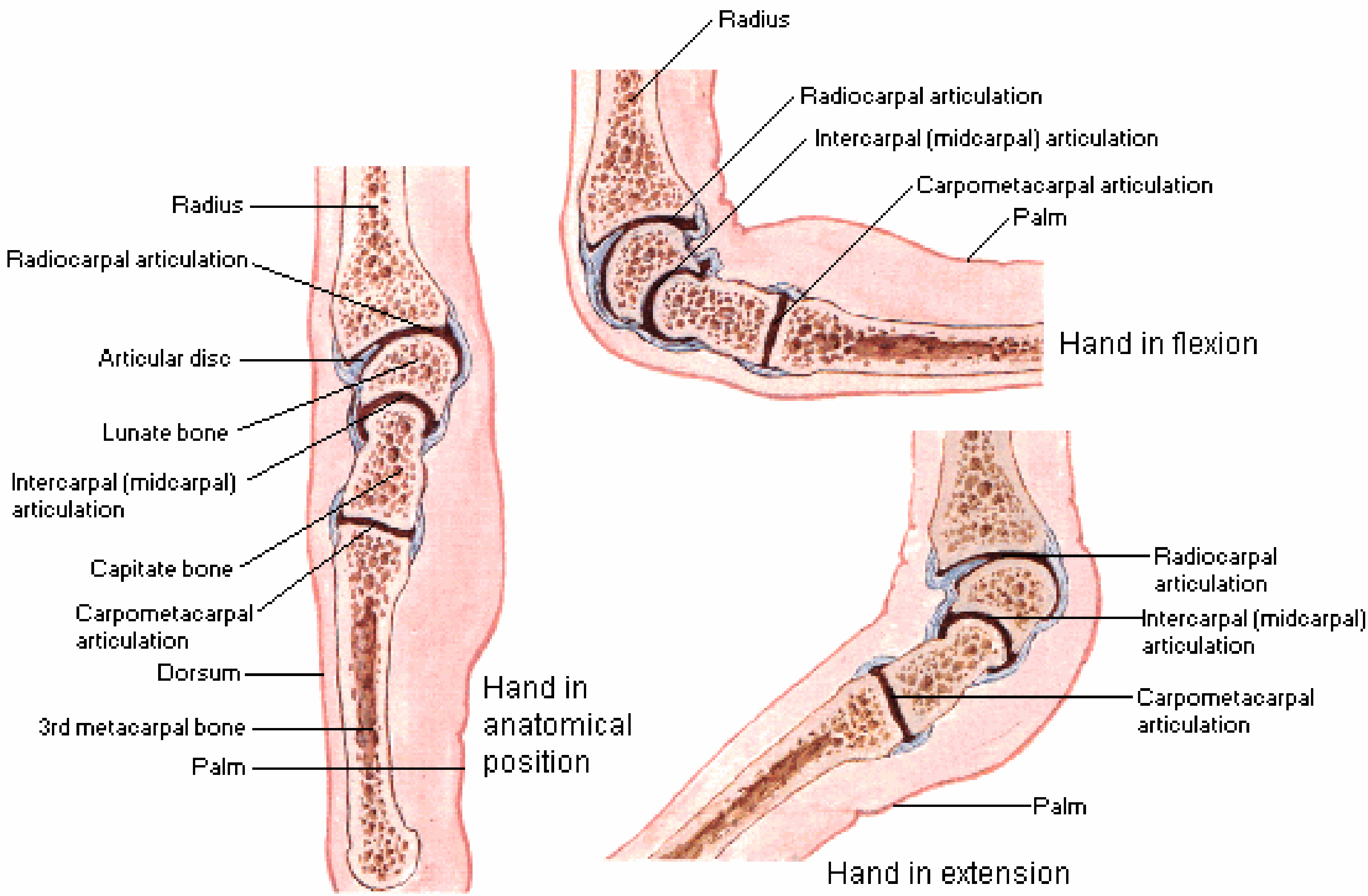
Hand in Abduction - Anterior [Palmar] View



Hand in Adduction - Anterior [Palmar] View

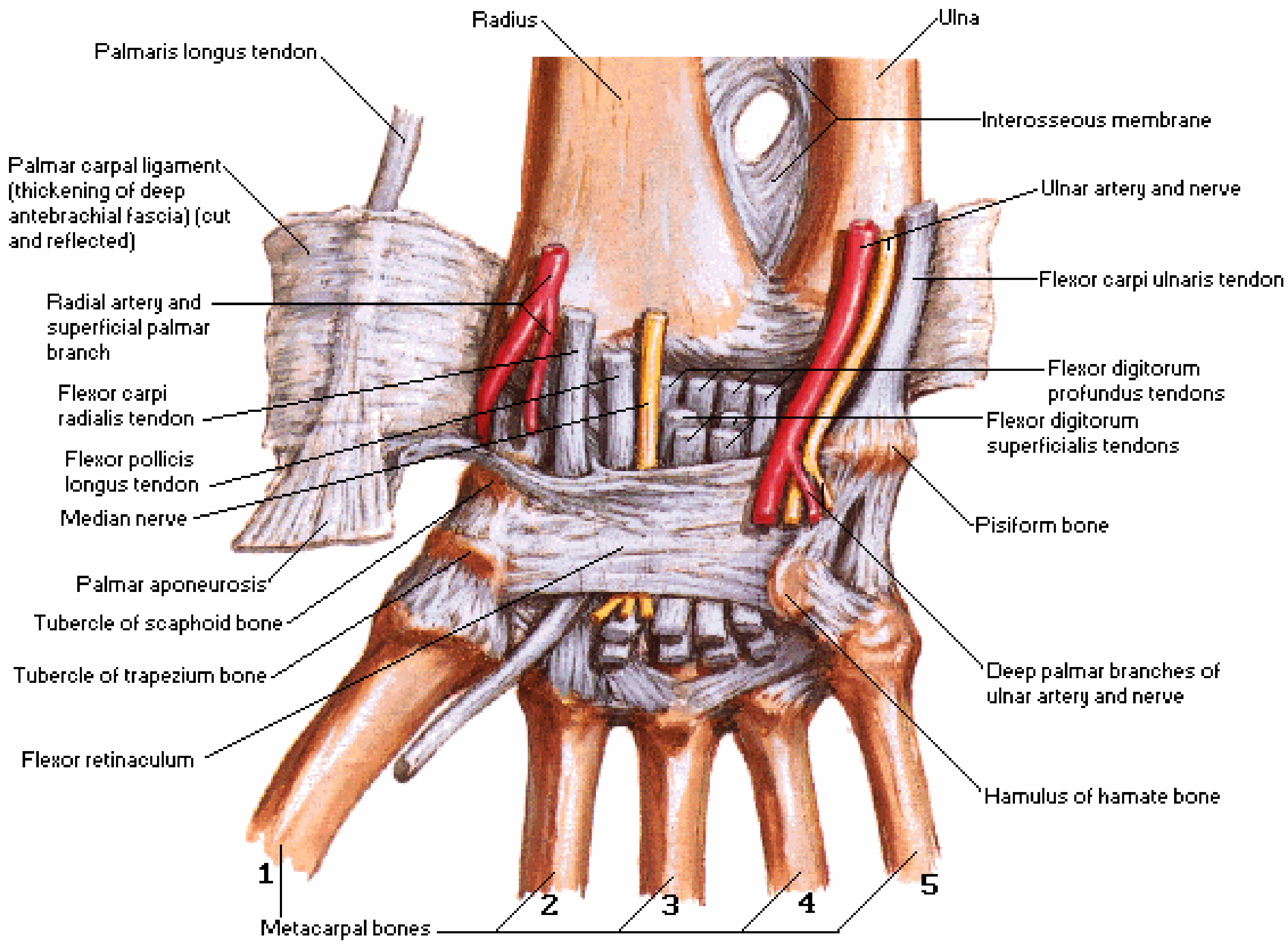


Sagittal Sections

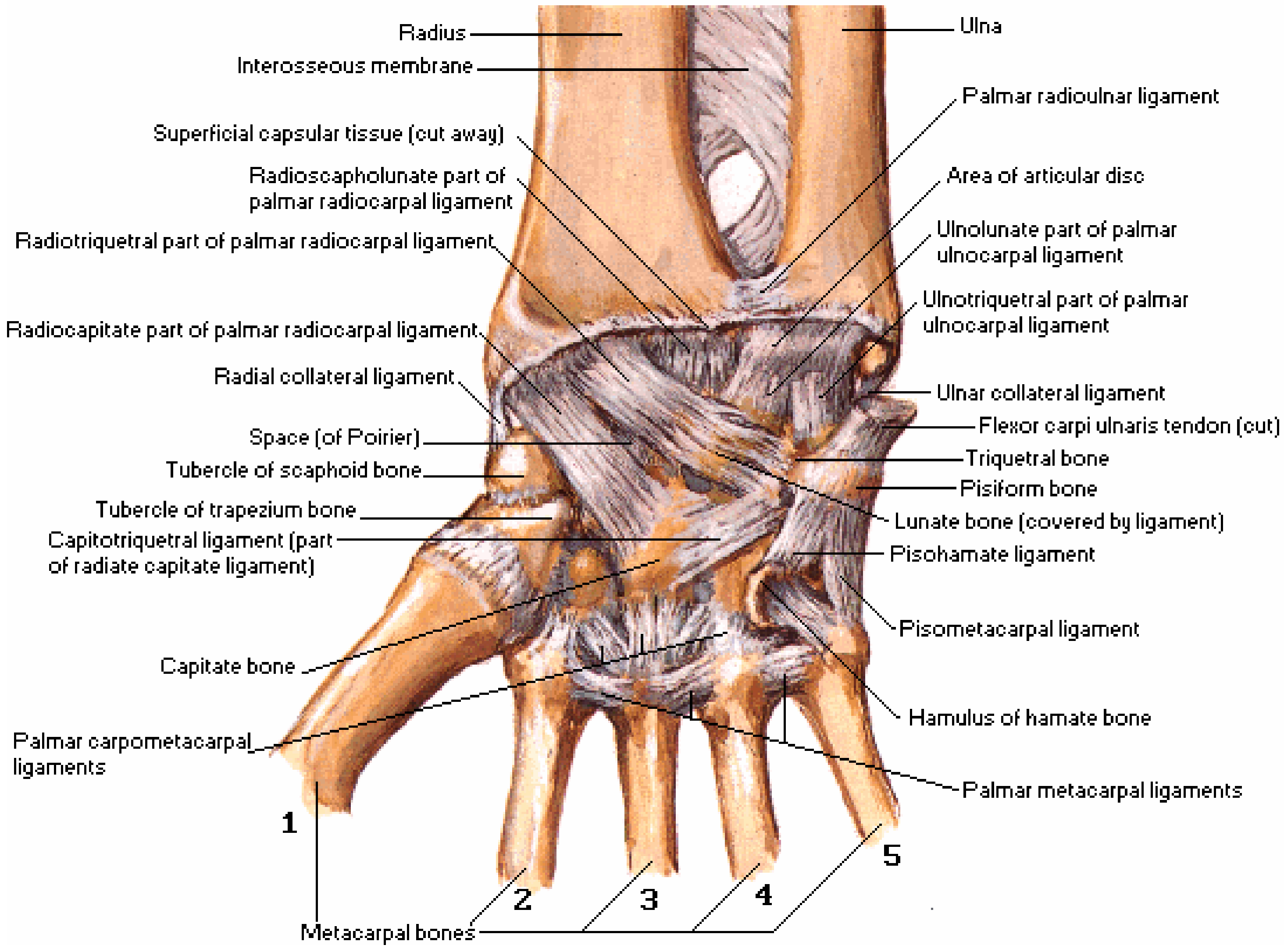


Sagittal sections through wrist and middle finger

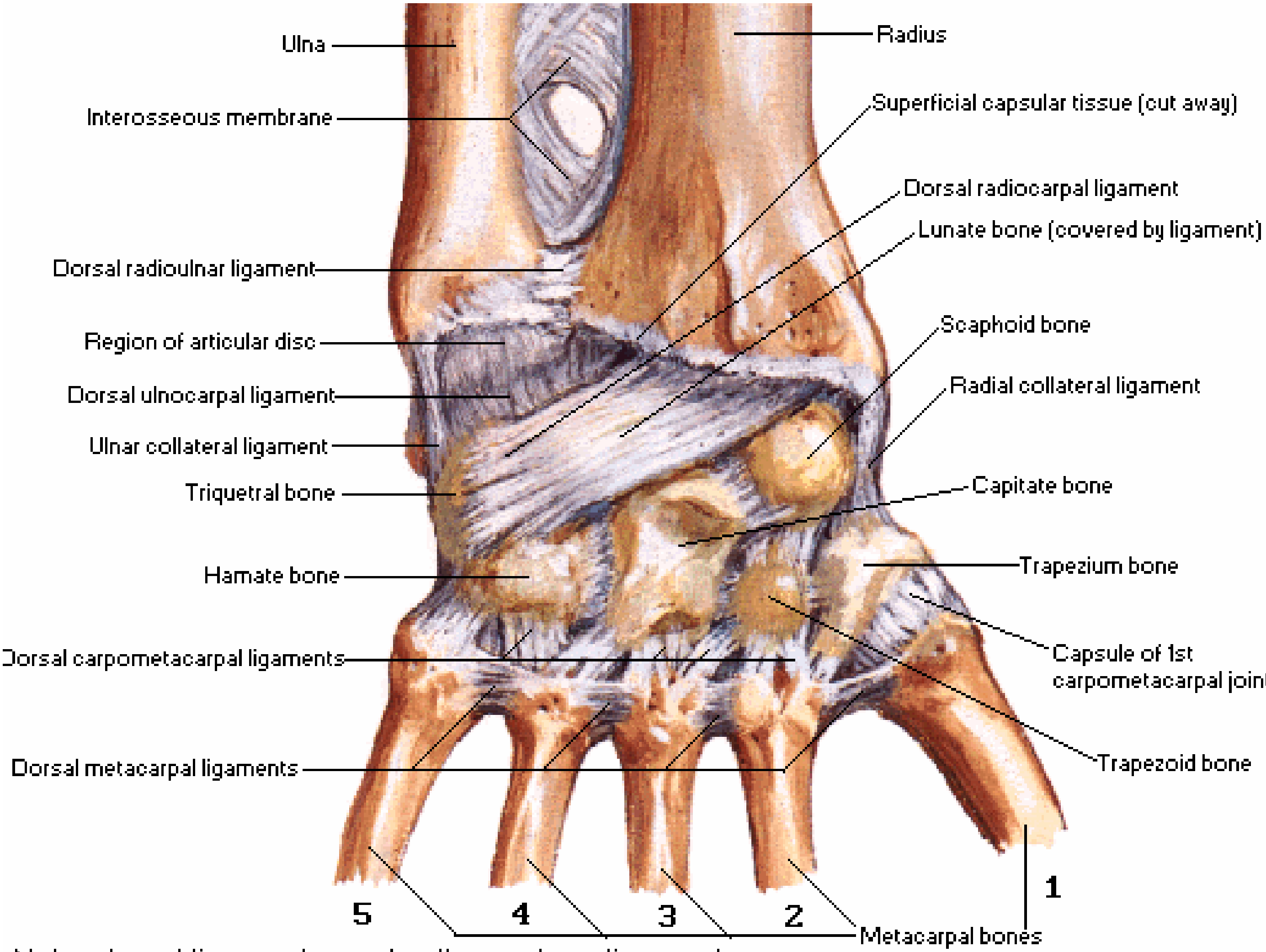
Carpal Tunnel - Palmar View



Flexor Retinaculum Removed - Palmar View

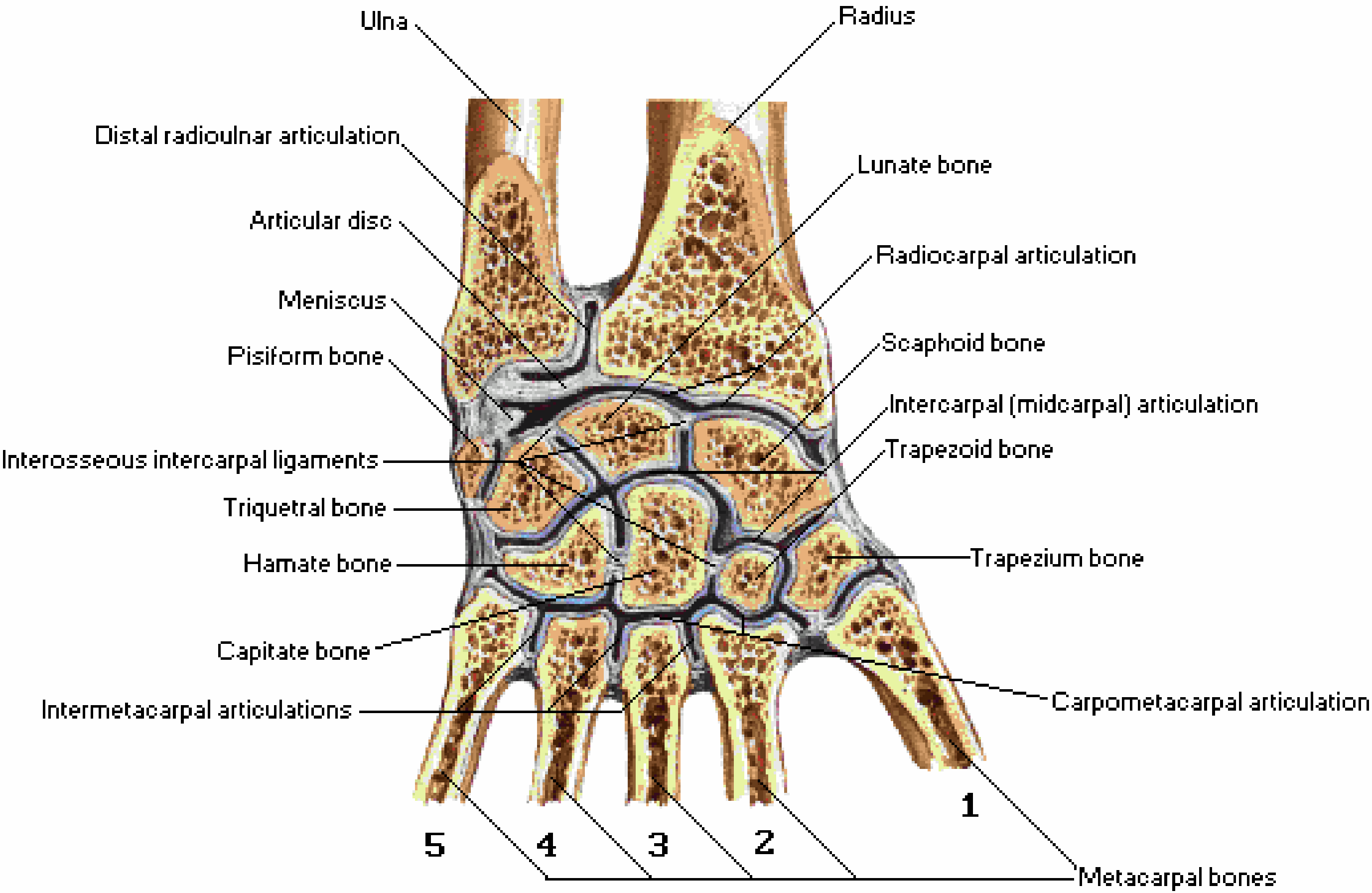


Posterior [Dorsal] View



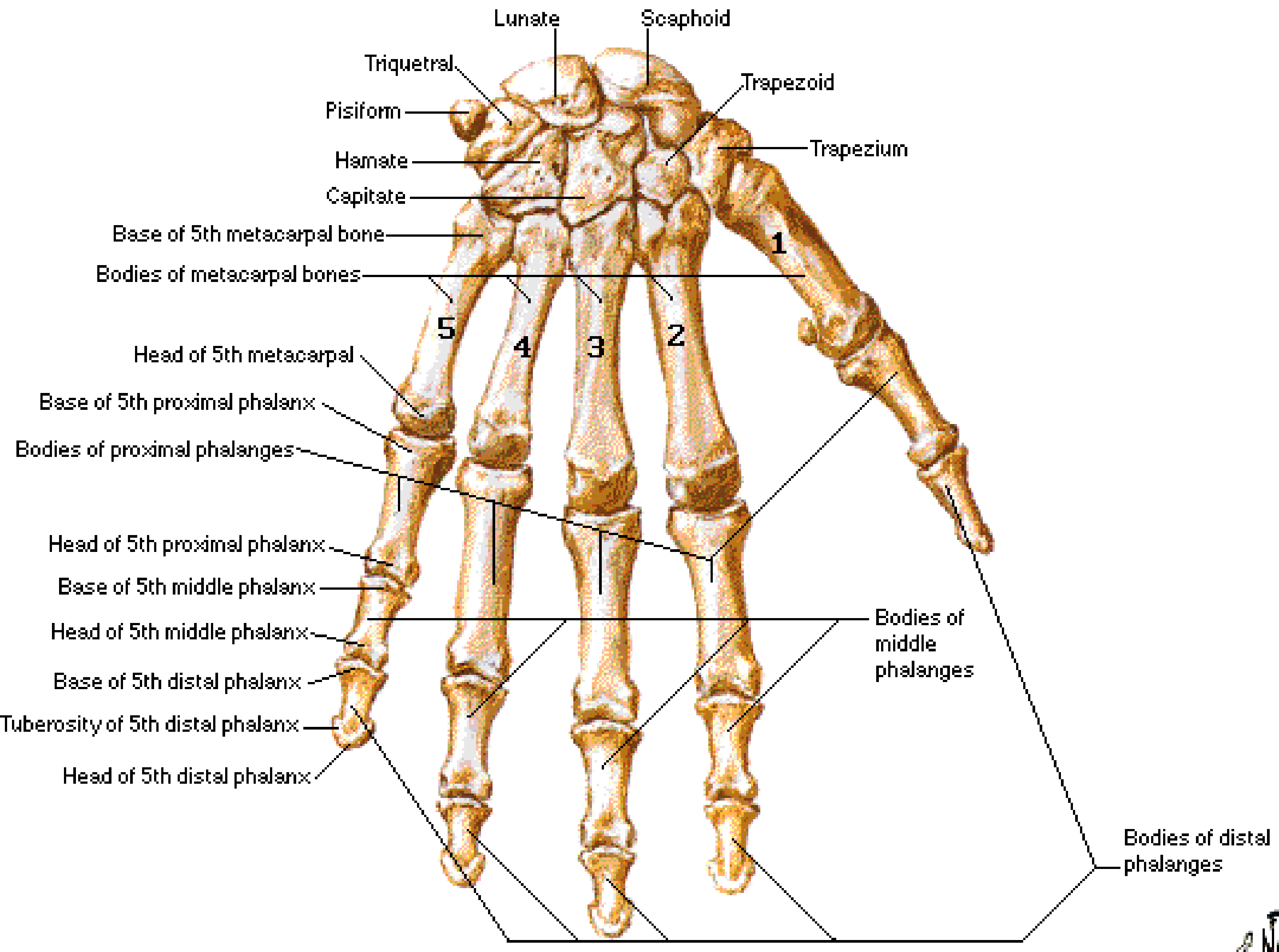
Note: dorsal ligaments weaker than palmar ligaments

Coronal Section - Dorsal View



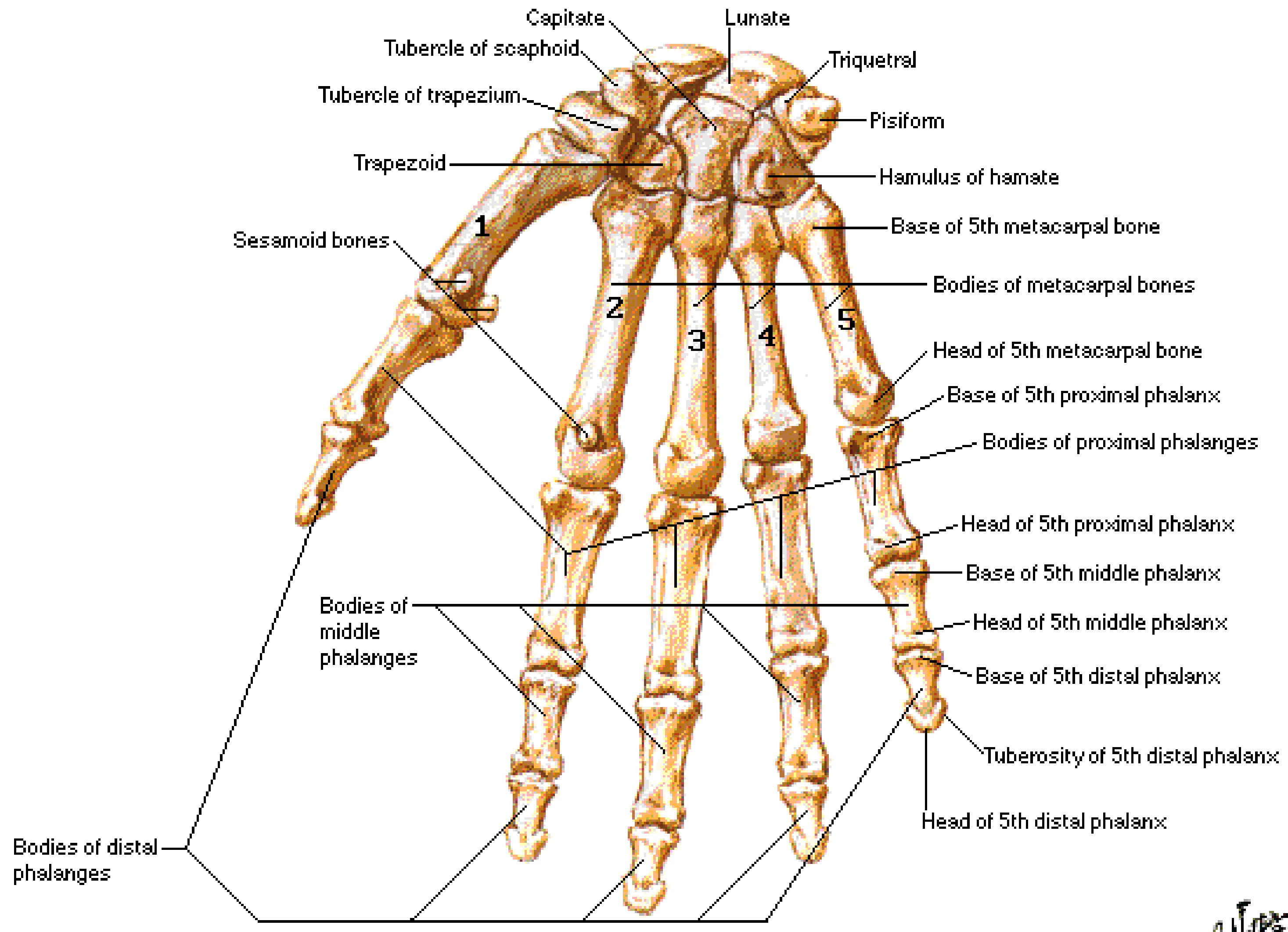
Bones of Right Wrist and Hand

Posterior [Dorsal] View

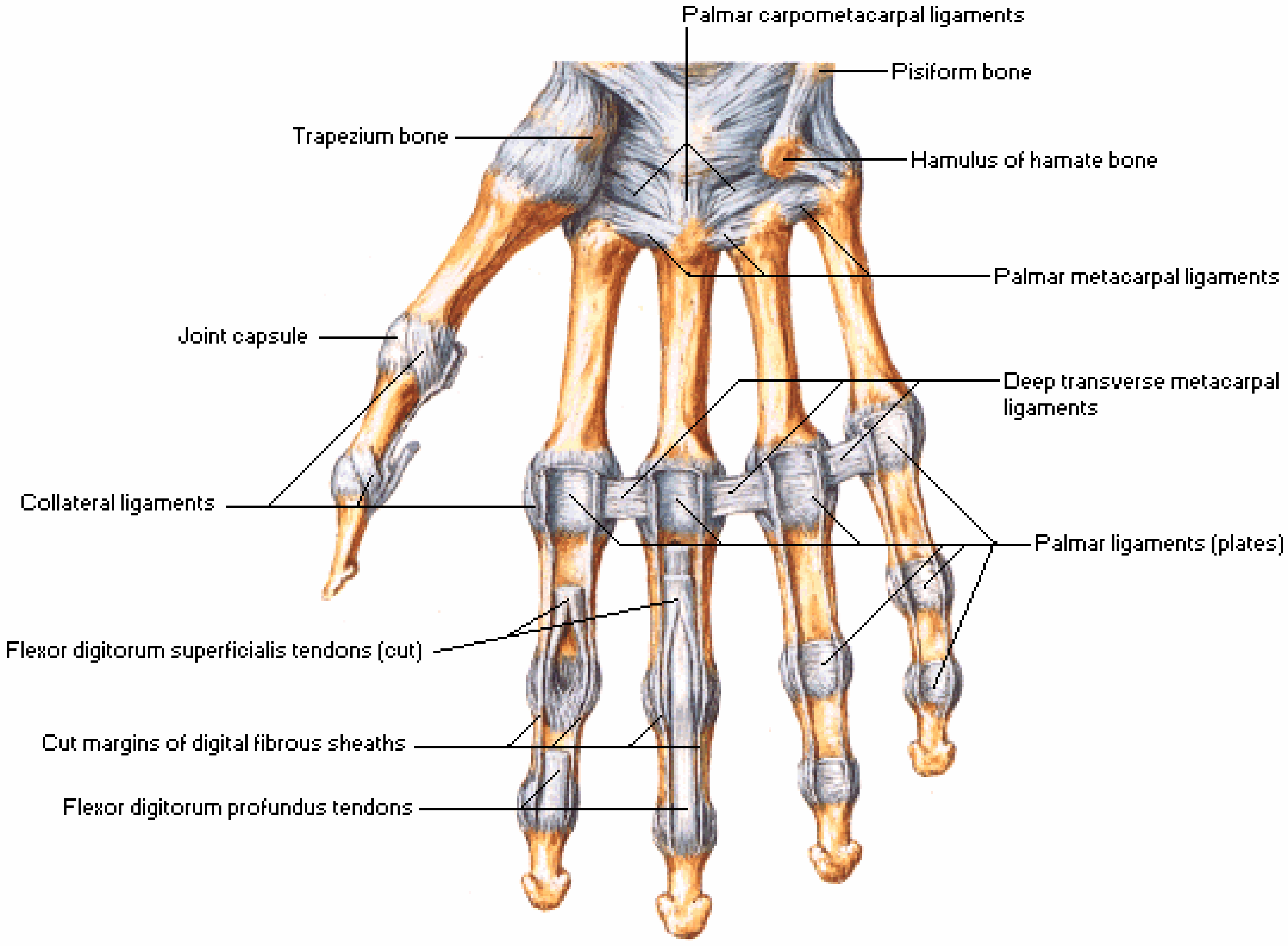


Bones of Right Wrist and Hand

Anterior [Palmar] View

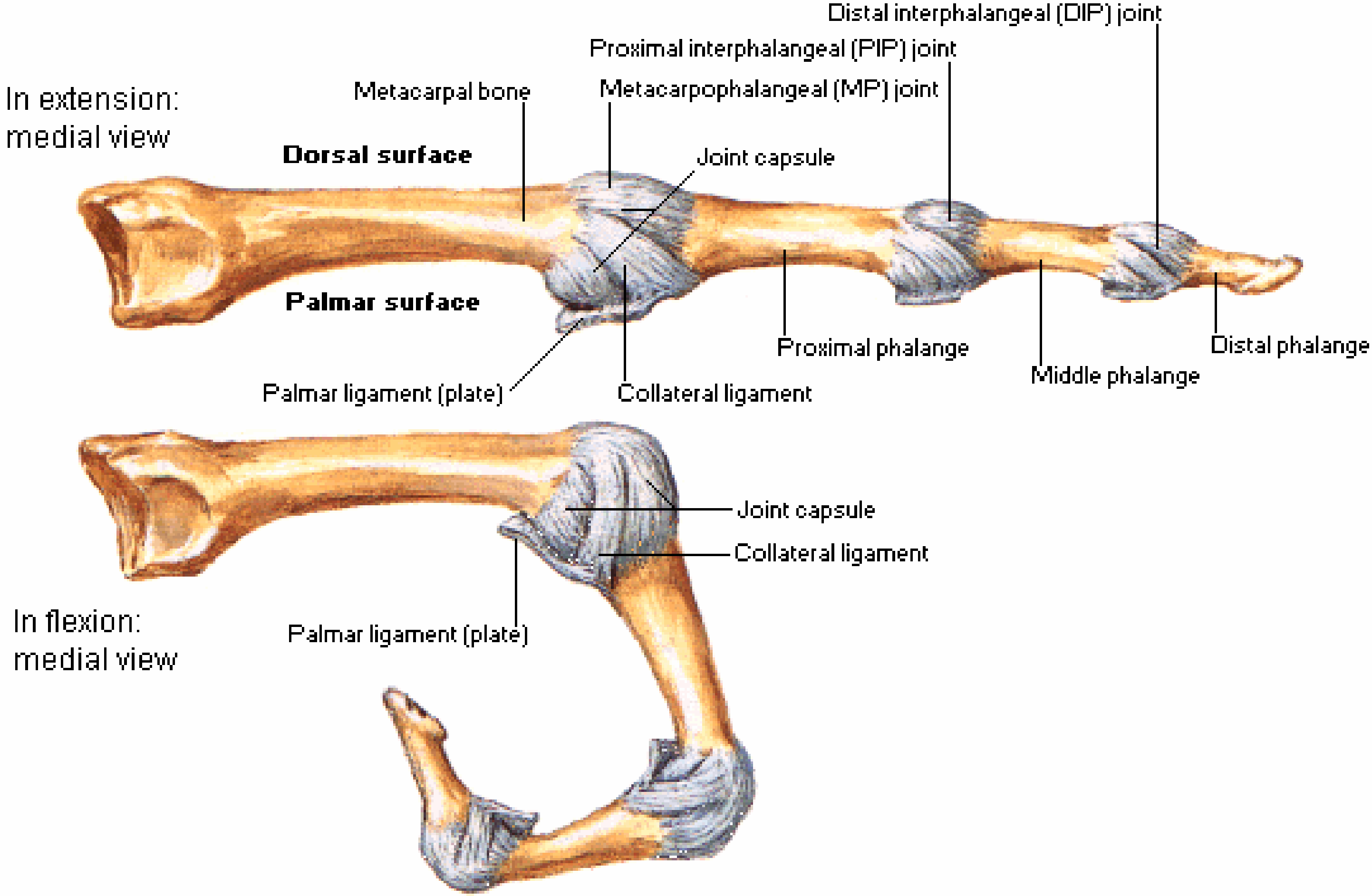


Palmar View



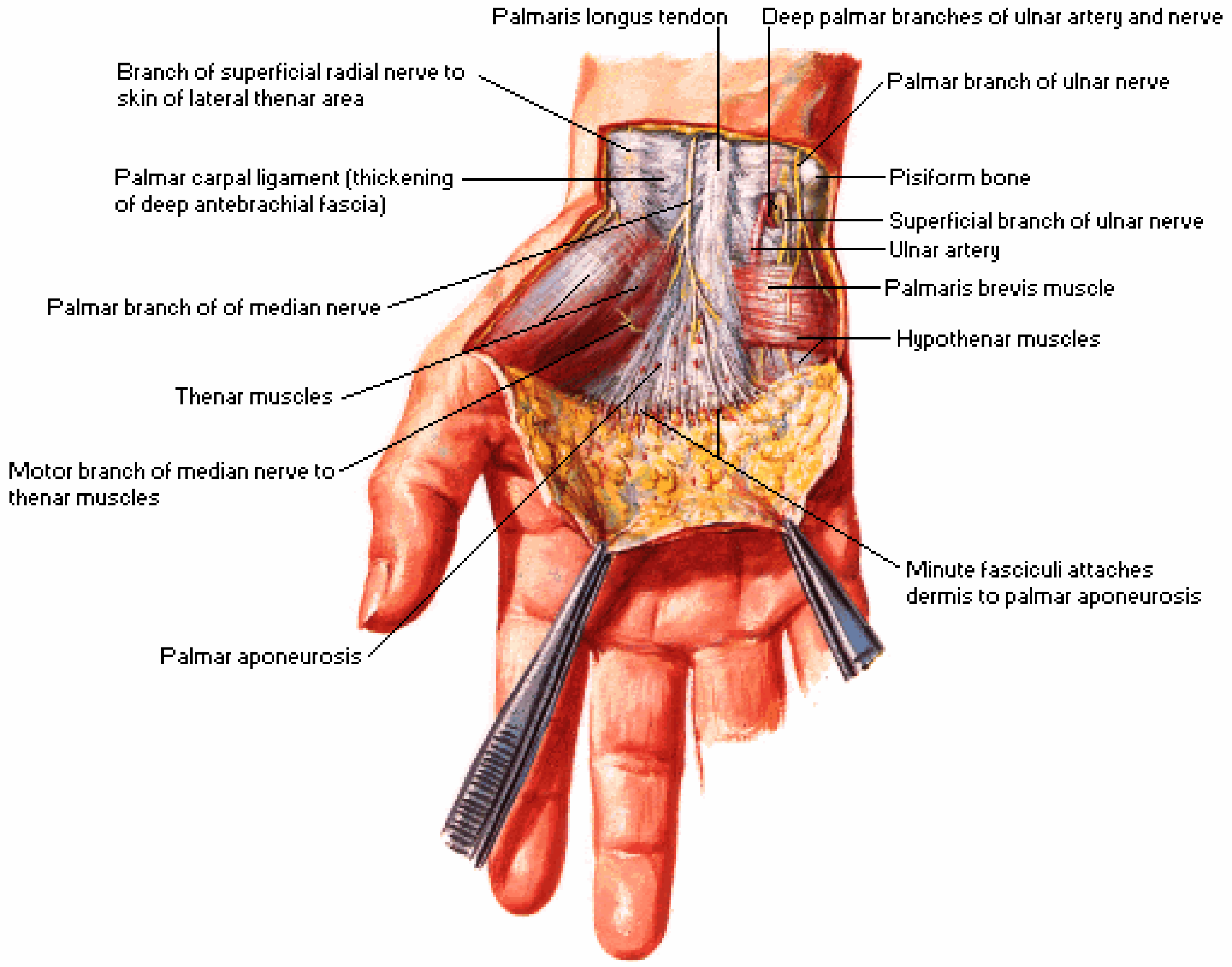
Palmar carpometacarpal ligaments
Pisiform bone
Trapezium bone
Hamulus of hamate bone
Palmar metacarpal ligaments
Joint capsule
Deep transverse metacarpal ligaments
Collateral ligaments
Palmar ligaments (plates)
Flexor digitorum superficialis tendons (cut)
Cut margins of digital fibrous sheaths
Flexor digitorum profundus tendons

Medial Views

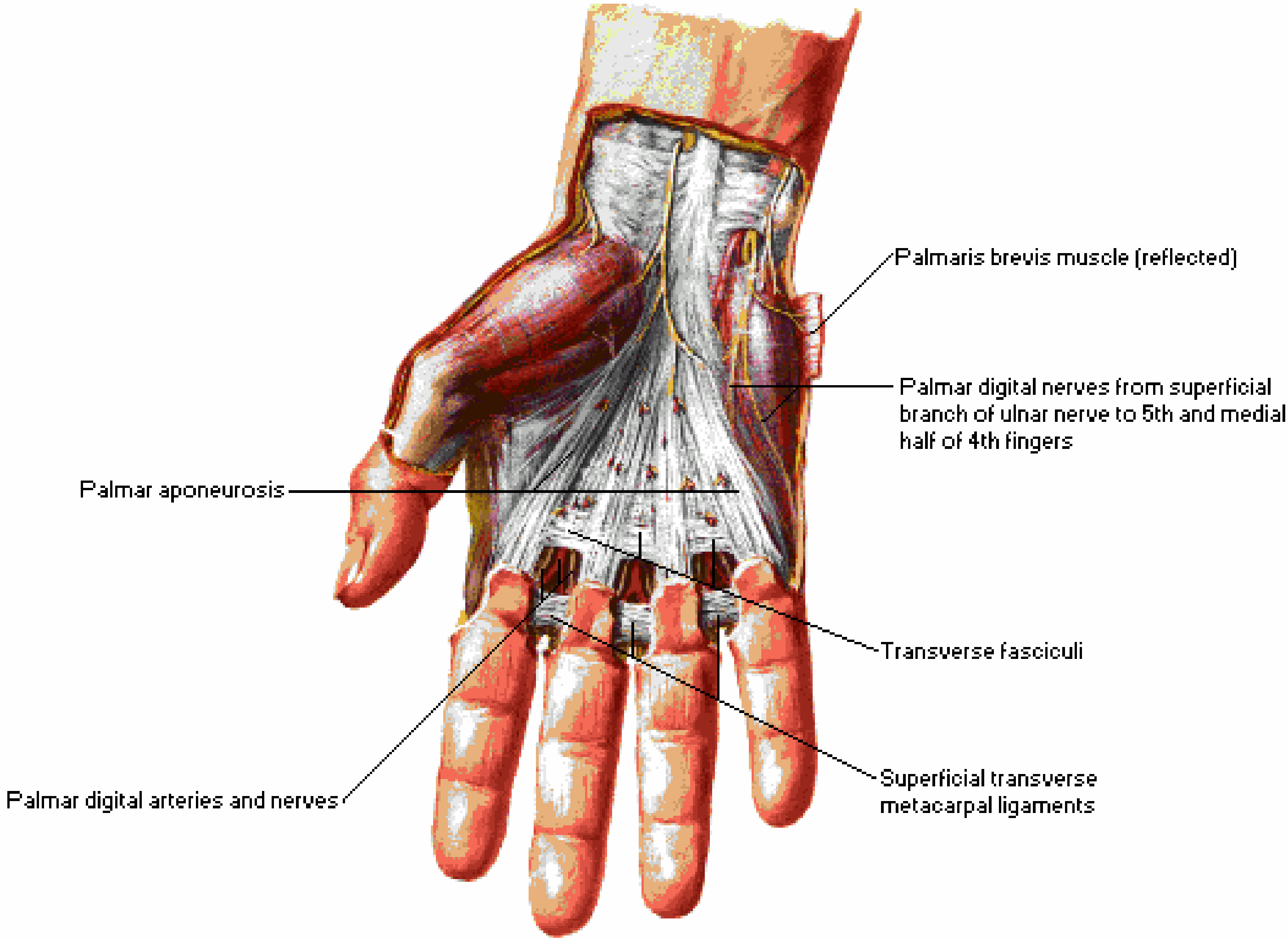


Note: ligaments of metacarpophalangeal and interphalangeal joints are similar

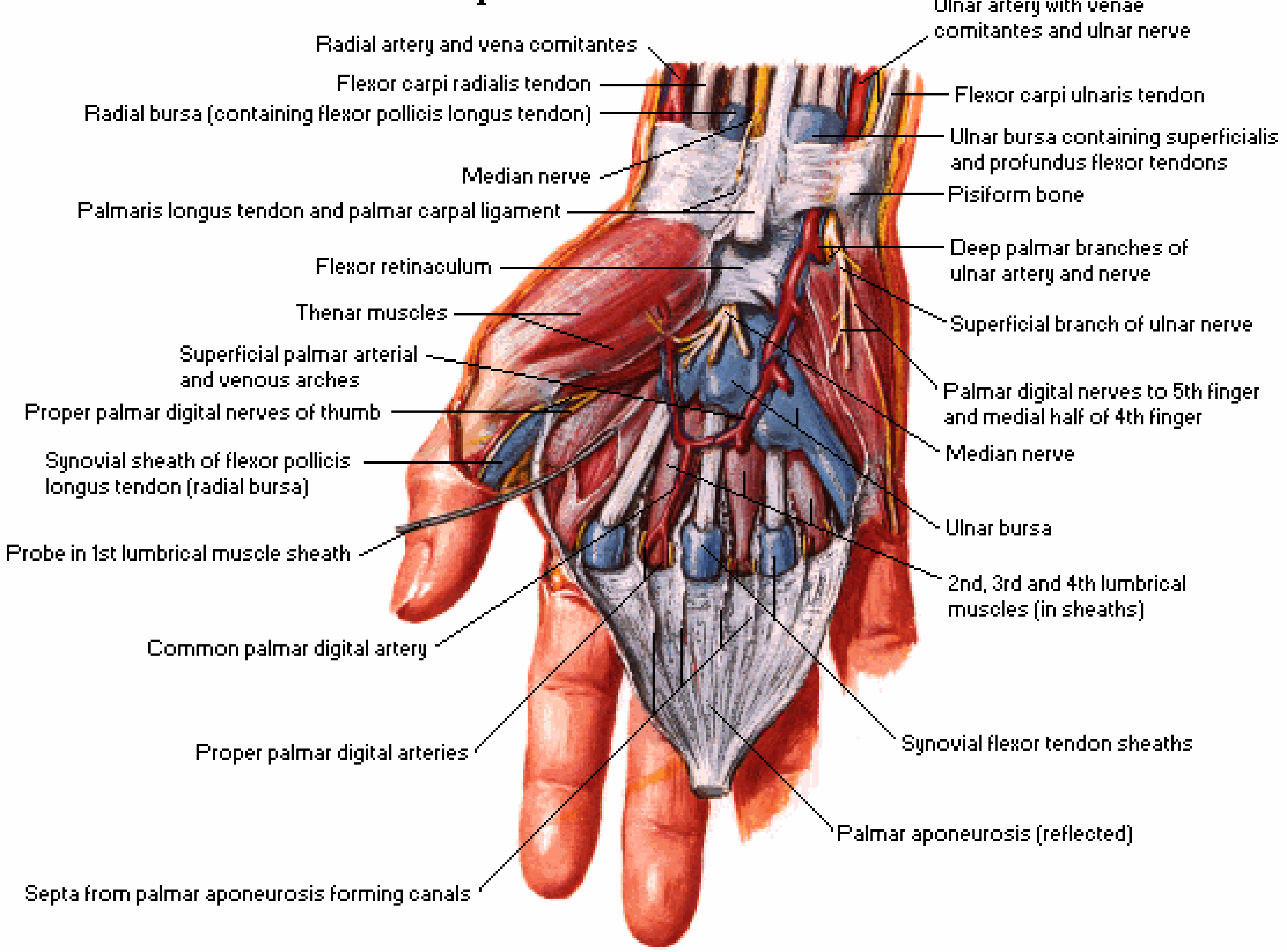
Superficial Palmar Dissections



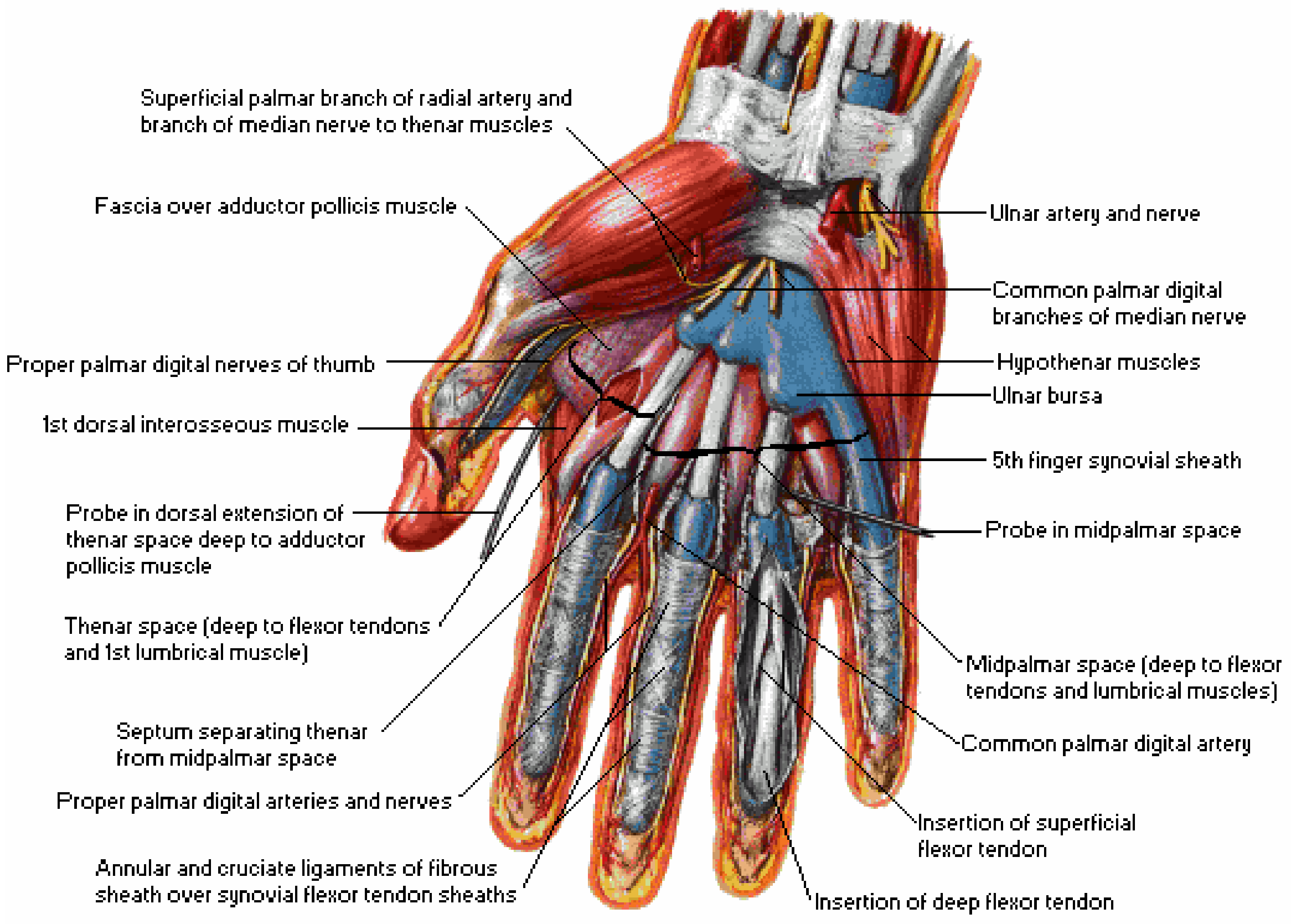
Superficial Palmar Dissections [Continued]



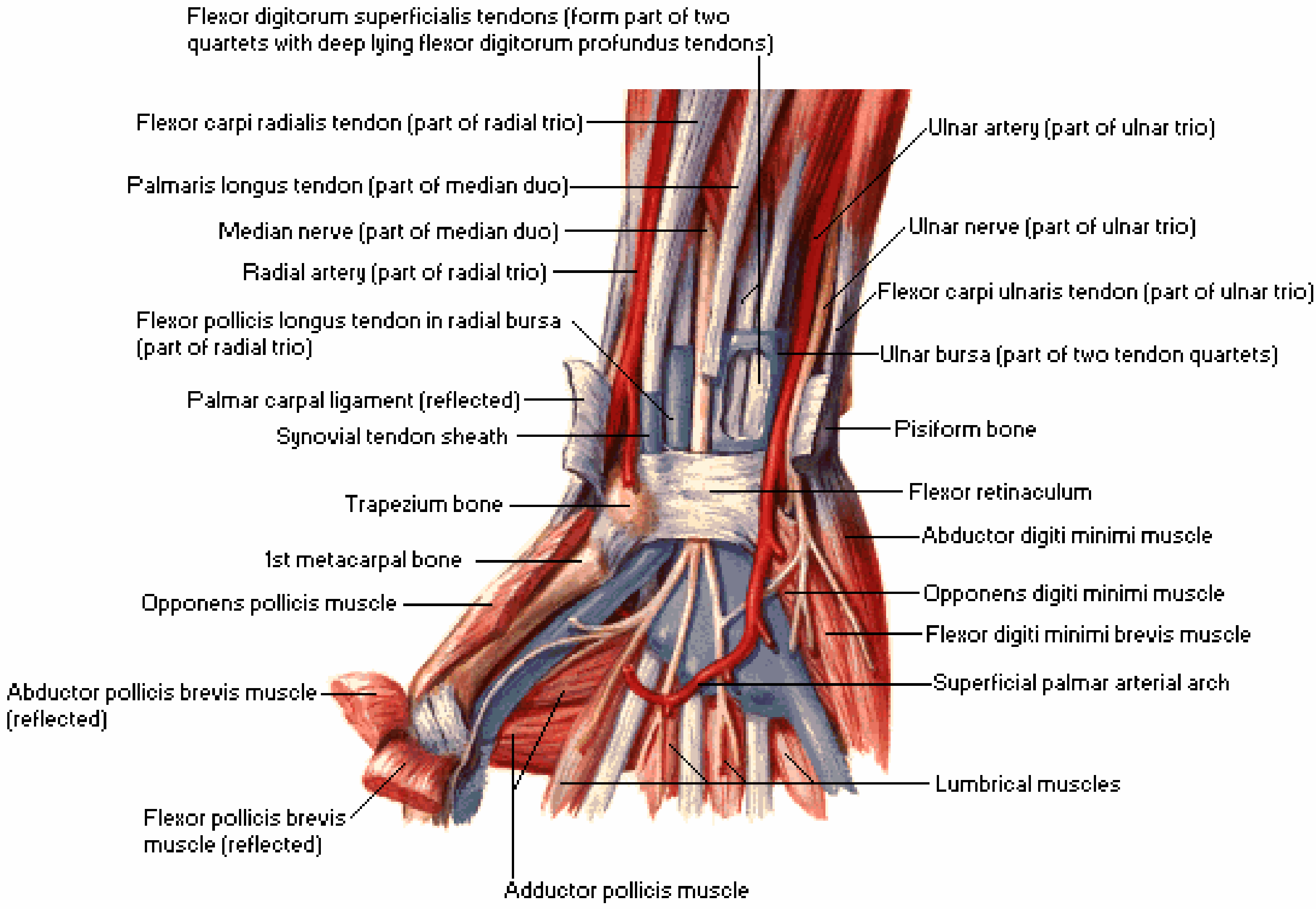
Deeper Palmar Dissections



Deeper Palmar Dissections [Continued]

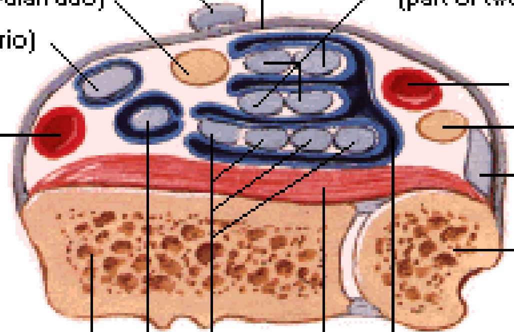


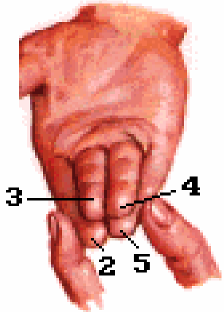
Palmar View



Flexor digitorum superficialis tendons (form part of two quartets with deep lying flexor digitorum profundus tendons)
Flexor carpi radialis tendon (part of radial trio)
Palmaris longus tendon (part of median duo)
Median nerve (part of median duo)
Radial artery (part of radial trio)
Flexor pollicis longus tendon in radial bursa (part of radial trio)
Palmar carpal ligament (reflected)
Synovial tendon sheath
Trapezium bone
1st metacarpal bone
Opponens pollicis muscle
Abductor pollicis brevis muscle (reflected)
Flexor pollicis brevis muscle (reflected)
Adductor pollicis muscle
Ulnar artery (part of ulnar trio)
Ulnar nerve (part of ulnar trio)
Flexor carpi ulnaris tendon (part of ulnar trio)
Ulnar bursa (part of two tendon quartets)
Pisiform bone
Flexor retinaculum
Abductor digiti minimi muscle
Opponens digiti minimi muscle
Flexor digiti minimi brevis muscle
Superficial palmar arterial arch
Lumbrical muscles

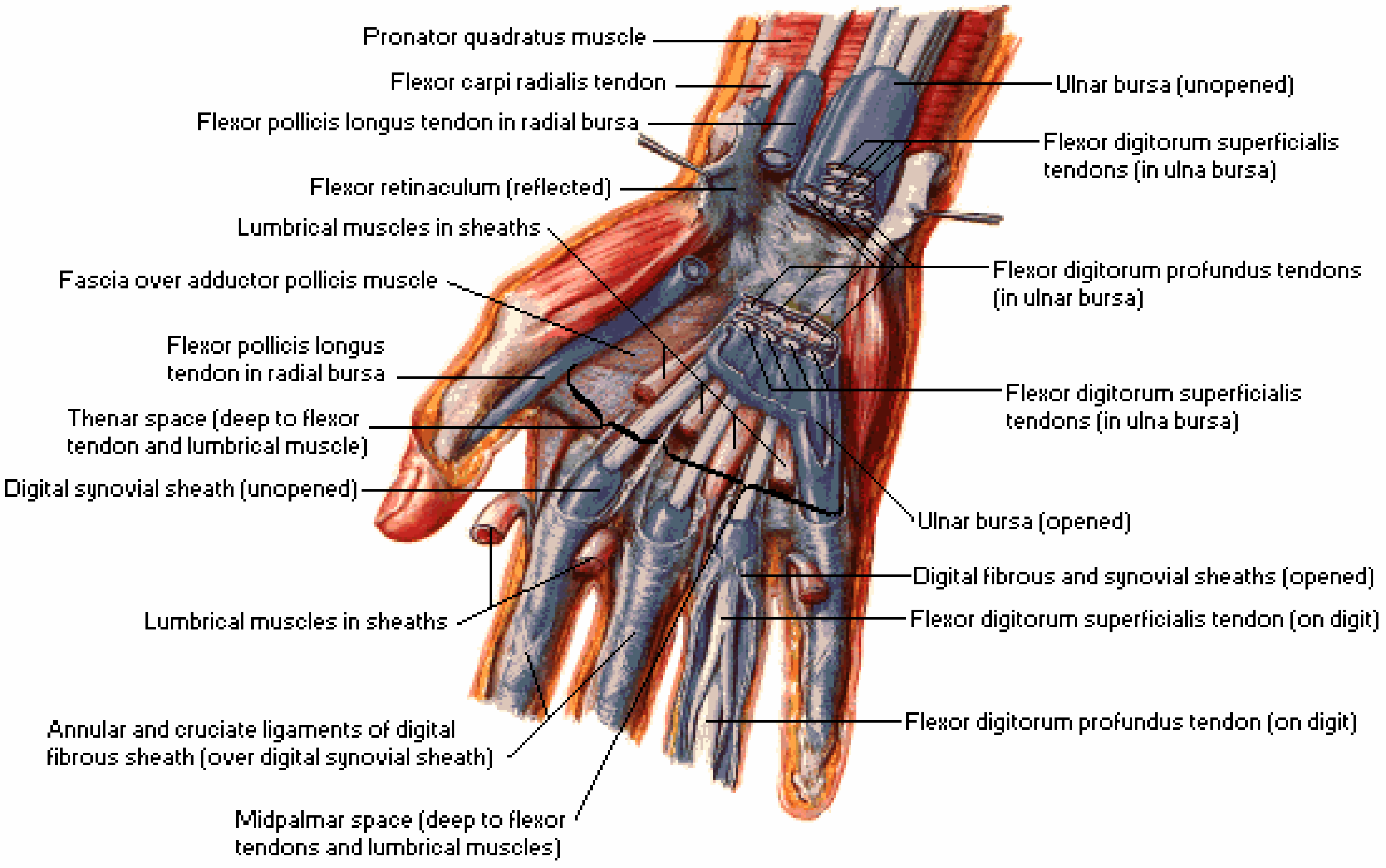
Cross Section





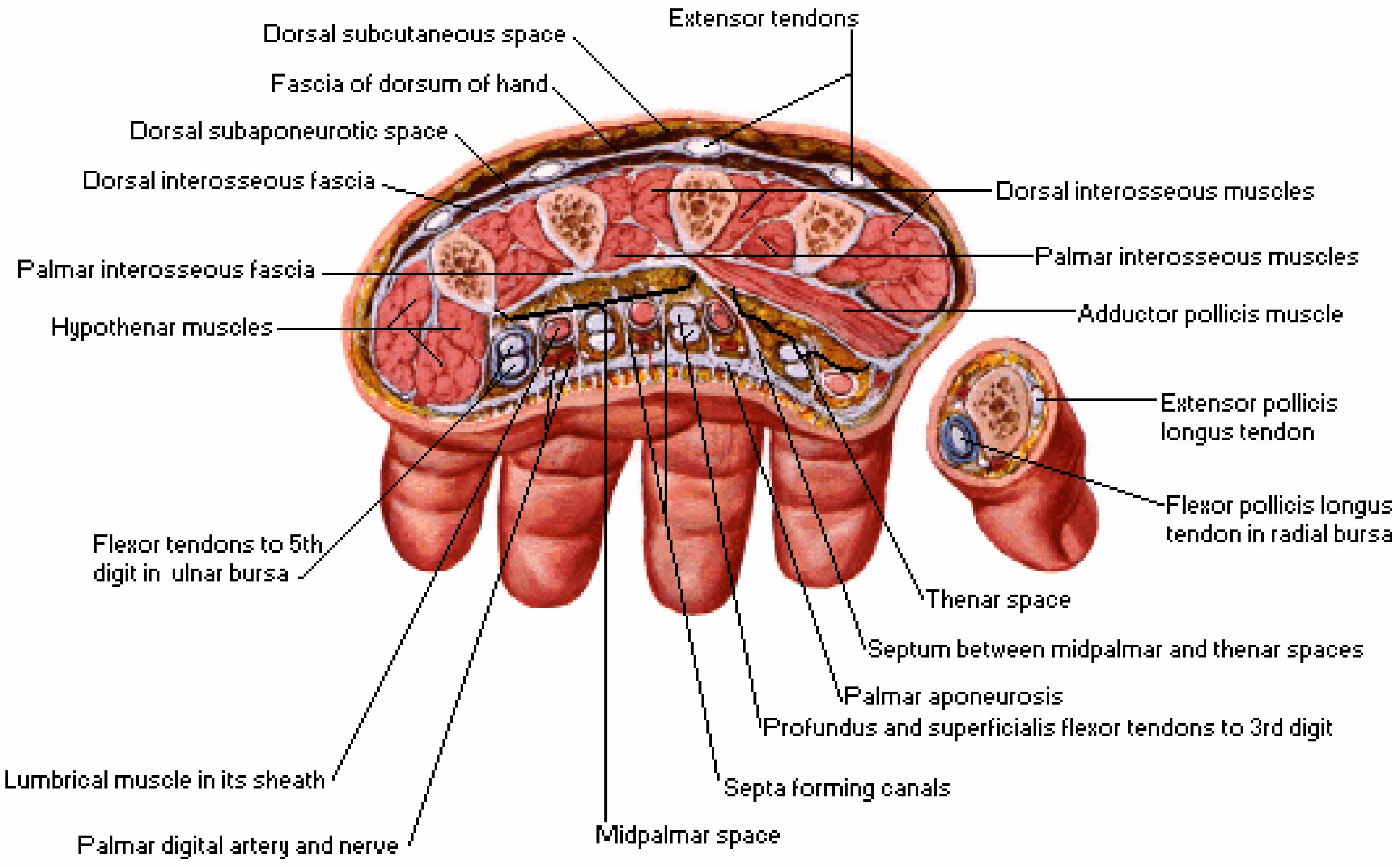
Simple method of demonstrating arrangement of flexor digitorum superficialis tendons at wrist

Palmar View

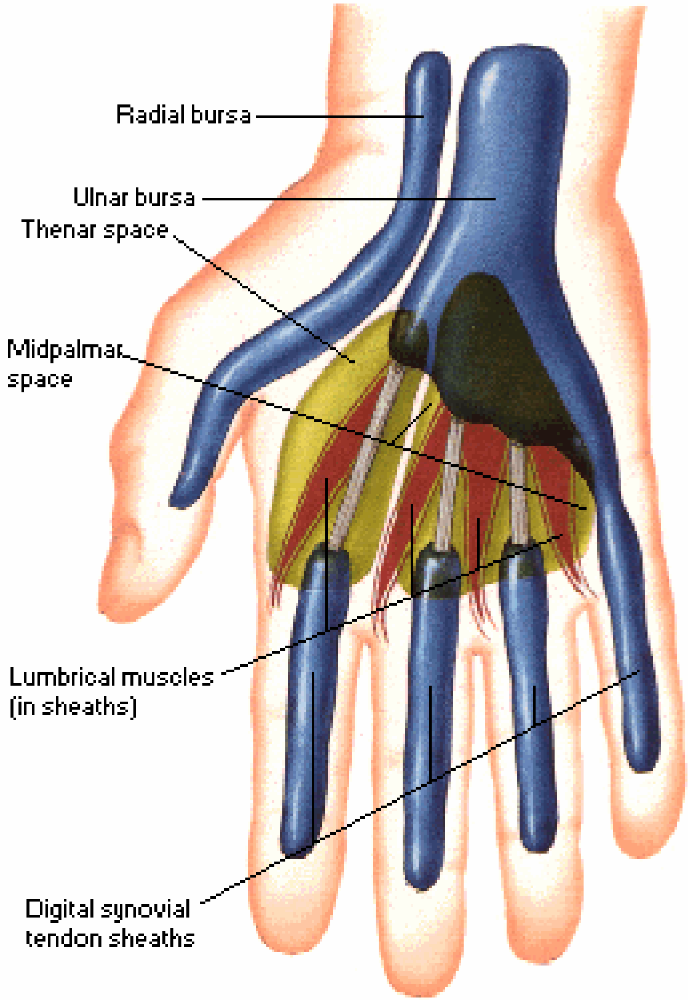


Pronator quadratus muscle
Flexor carpi radialis tendon
Flexor pollicis longus tendon in radial bursa
Flexor retinaculum (reflected)
Lumbrical muscles in sheaths
Fascia over adductor pollicis muscle
Flexor pollicis longus tendon in radial bursa
Thenar space (deep to flexor tendon and lumbrical muscle)
Digital synovial sheath (unopened)
Lumbrical muscles in sheaths
Annular and cruciate ligaments of digital fibrous sheath (over digital synovial sheath)
Midpalmar space (deep to flexor tendons and lumbrical muscles)
Ulnar bursa (unopened)
Flexor digitorum superficialis tendons (in ulna bursa)
Flexor digitorum profundus tendons (in ulnar bursa)
Flexor digitorum superficialis tendons (in ulna bursa)
Ulnar bursa (opened)
Digital fibrous and synovial sheaths (opened)
Flexor digitorum superficialis tendon (on digit)
Flexor digitorum profundus tendon (on digit)

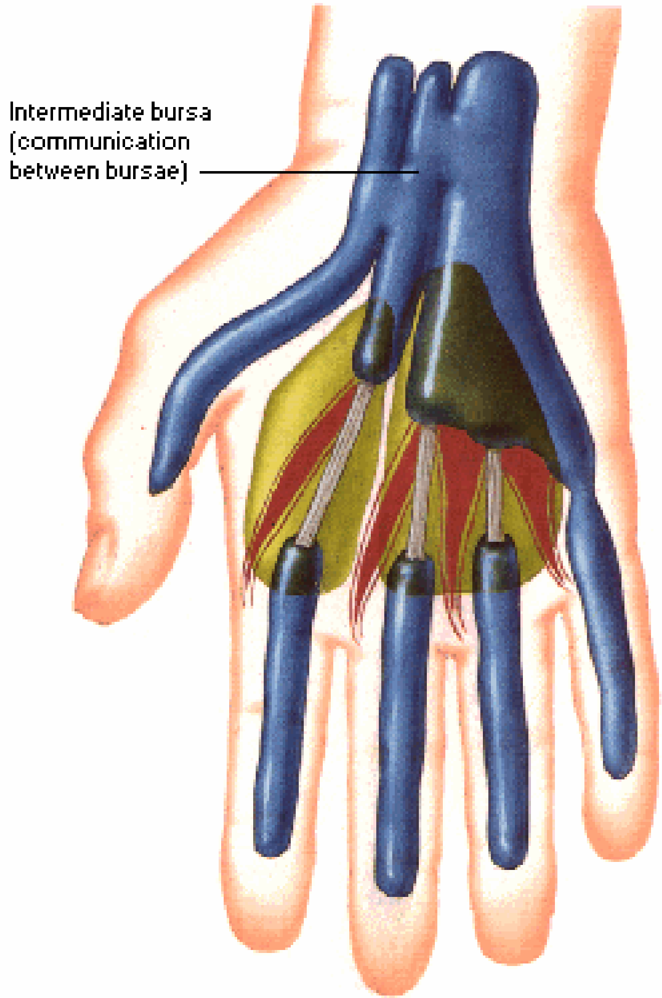
Cross Section



Schema

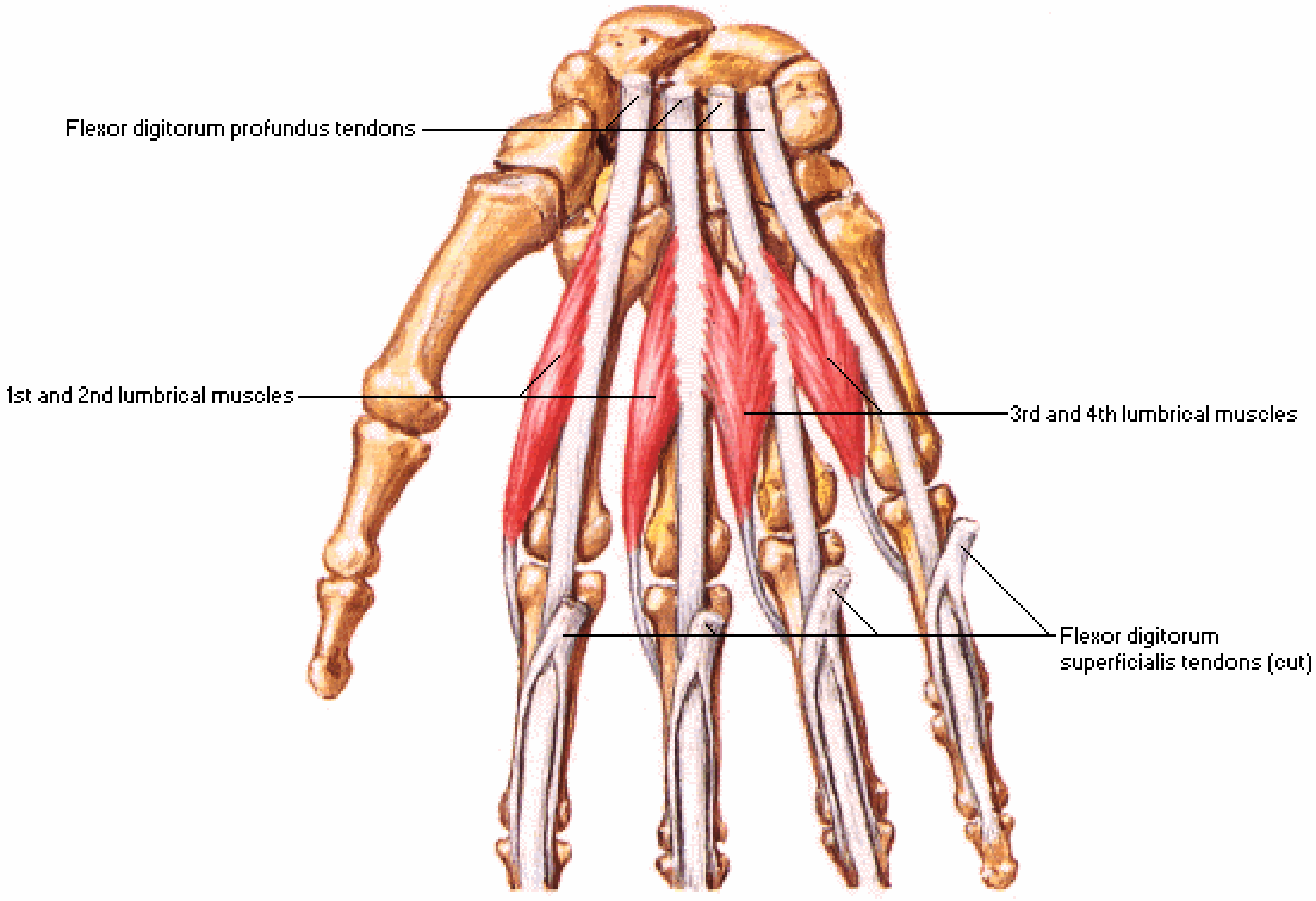


Usual arrangement



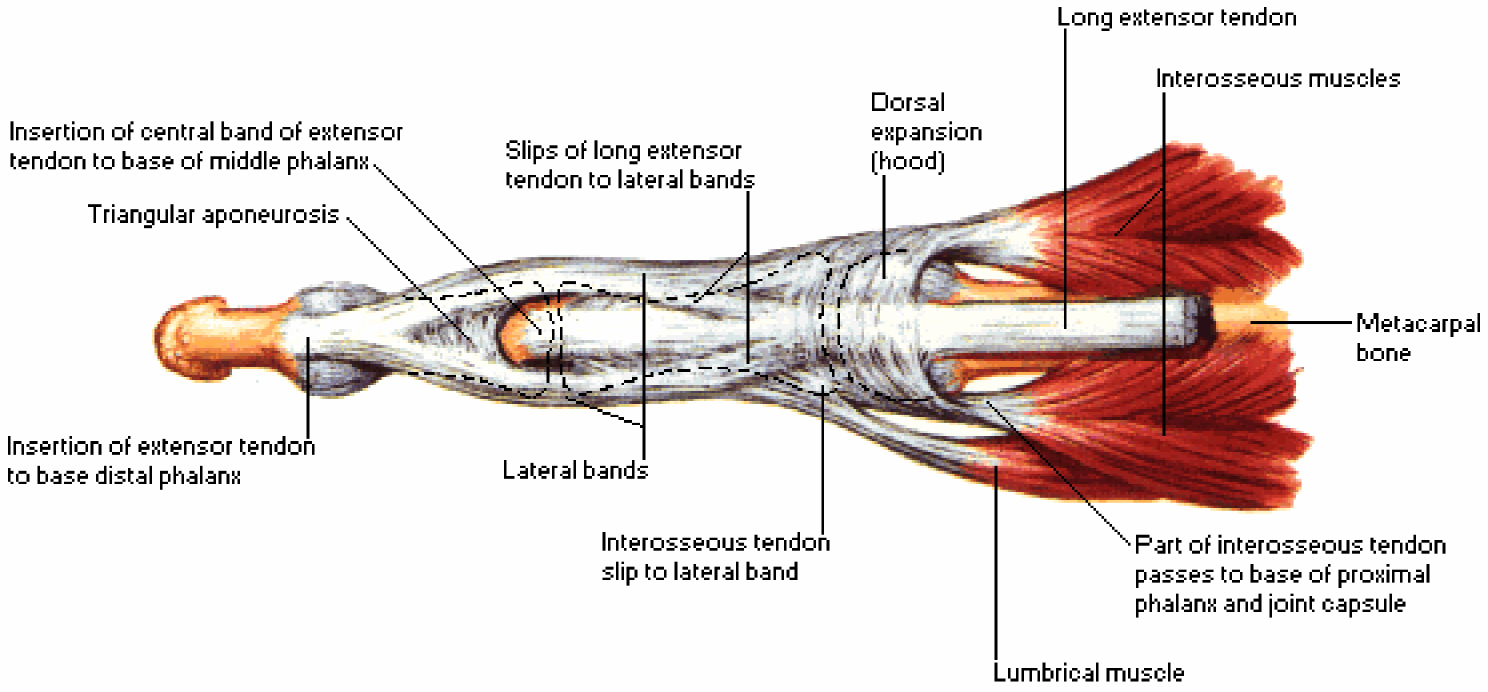
Common variation

Schema

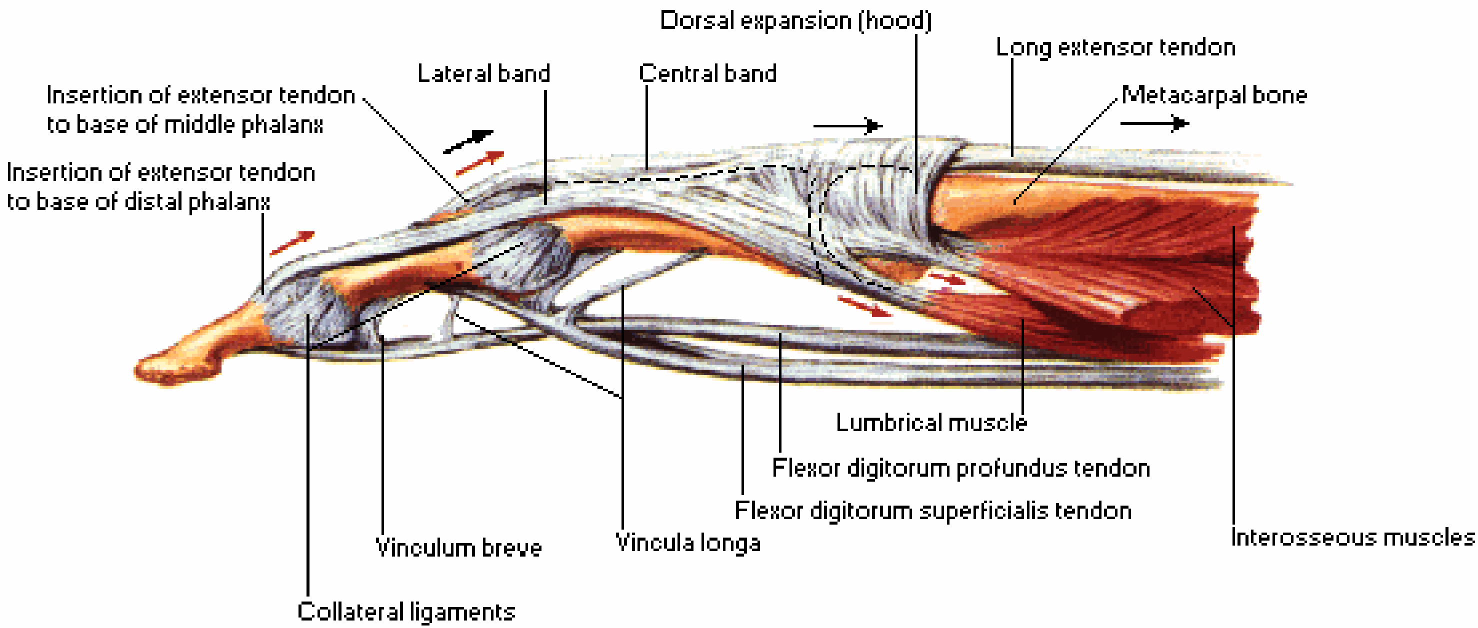


Flexor digitorum profundus tendons
1st and 2nd lumbrical muscles
3rd and 4th lumbrical muscles
Flexor digitorum
superficialis tendons (cut)

Posterior [Dorsal] View

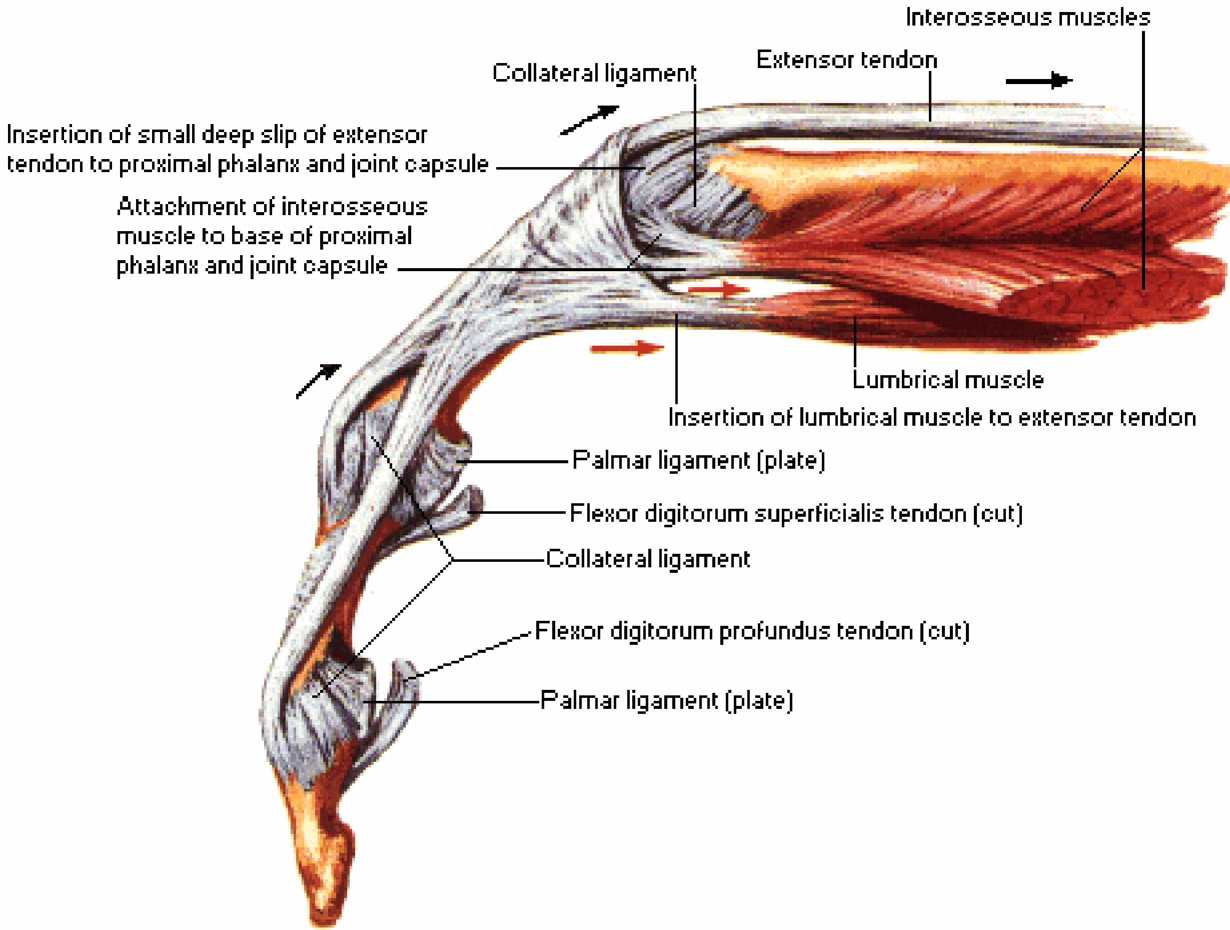


Extended - Lateral View



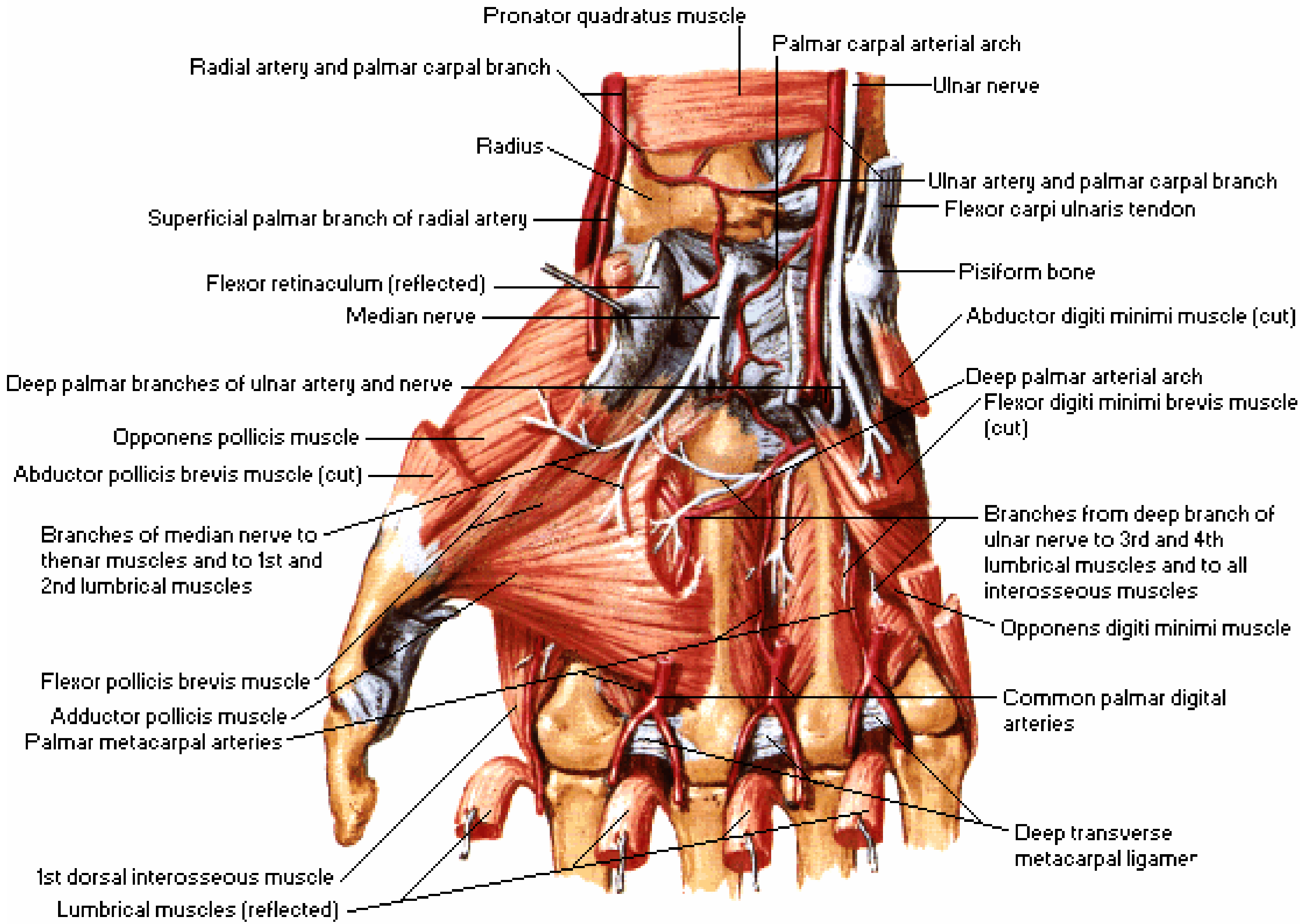
Note: black arrows indicate pull of long extensor tendon; red arrows indicate pull of interosseous and lumbrical muscles

Flexed - Lateral View

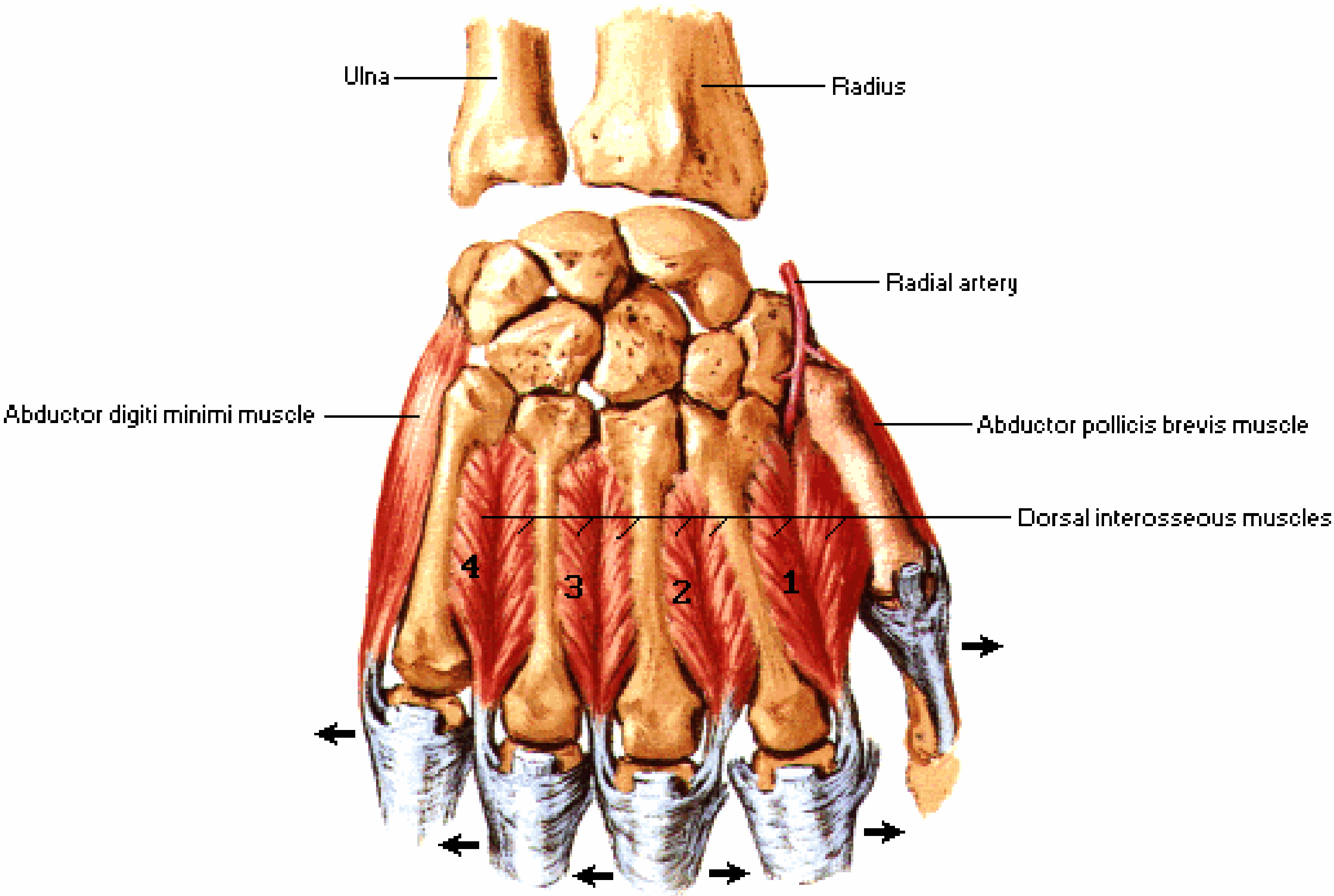


Note: black arrows indicate pull of long extensor tendon; red arrows indicate pull of interosseous and lumbrical muscles

Anterior [Palmar] View

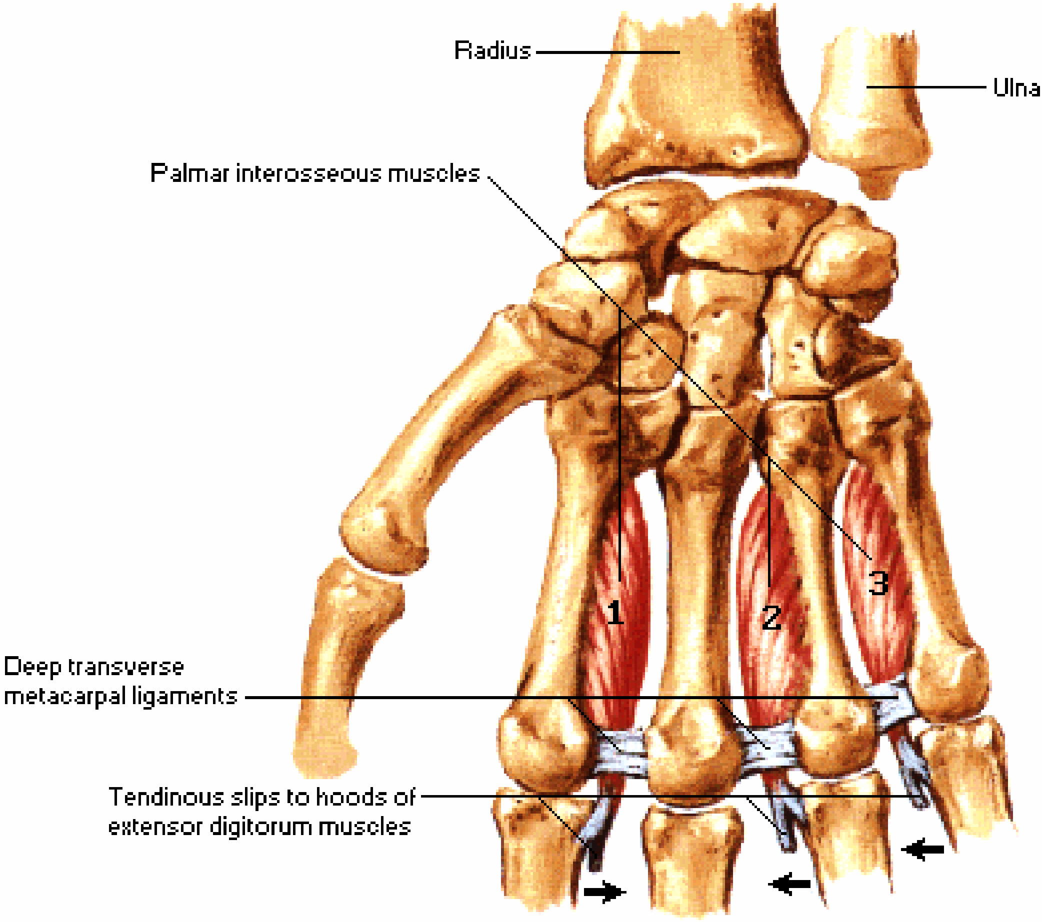


Posterior [Dorsal] View



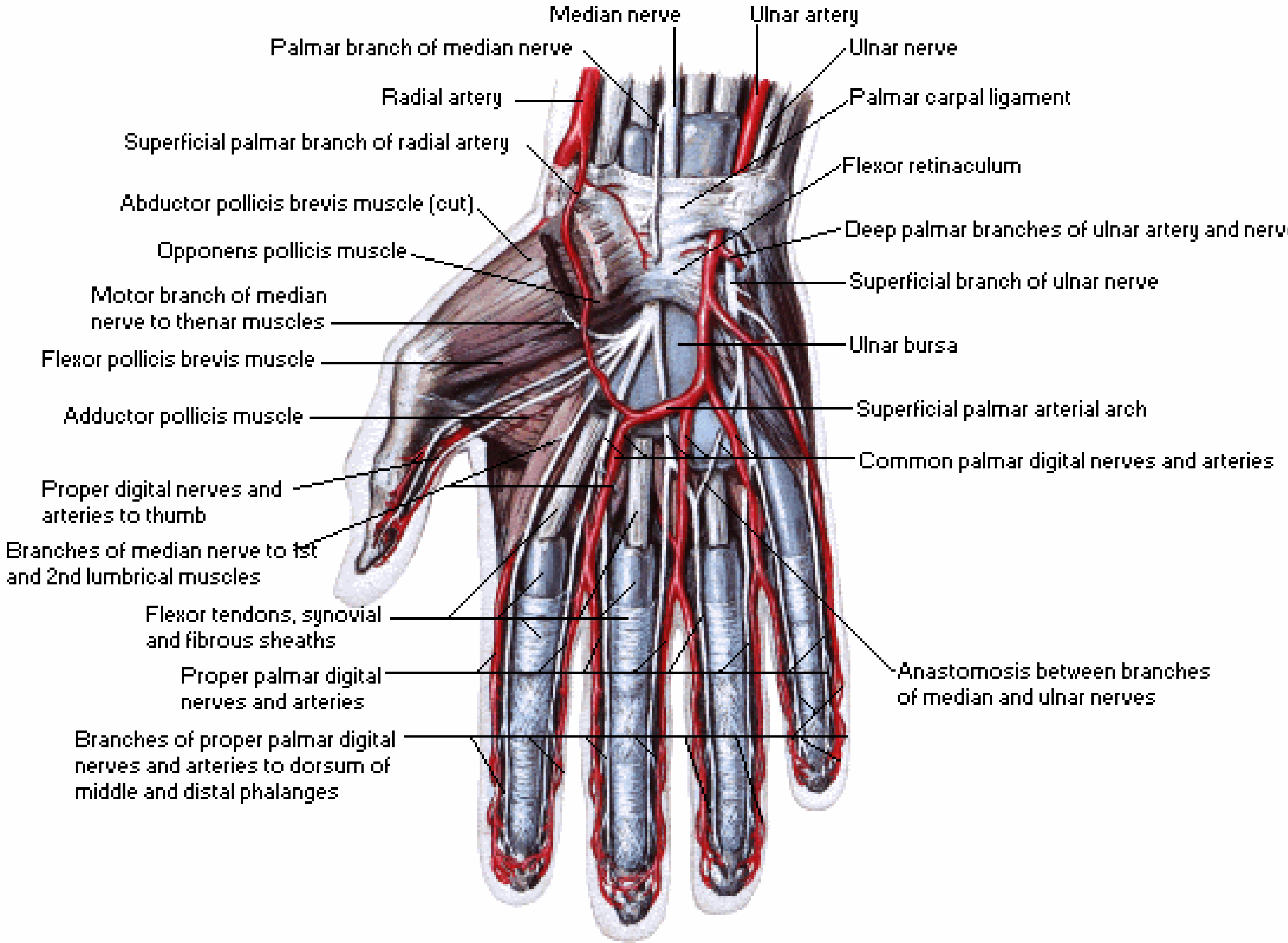
Note: arrows indicate action of muscles

Deep Anterior [Palmar] View

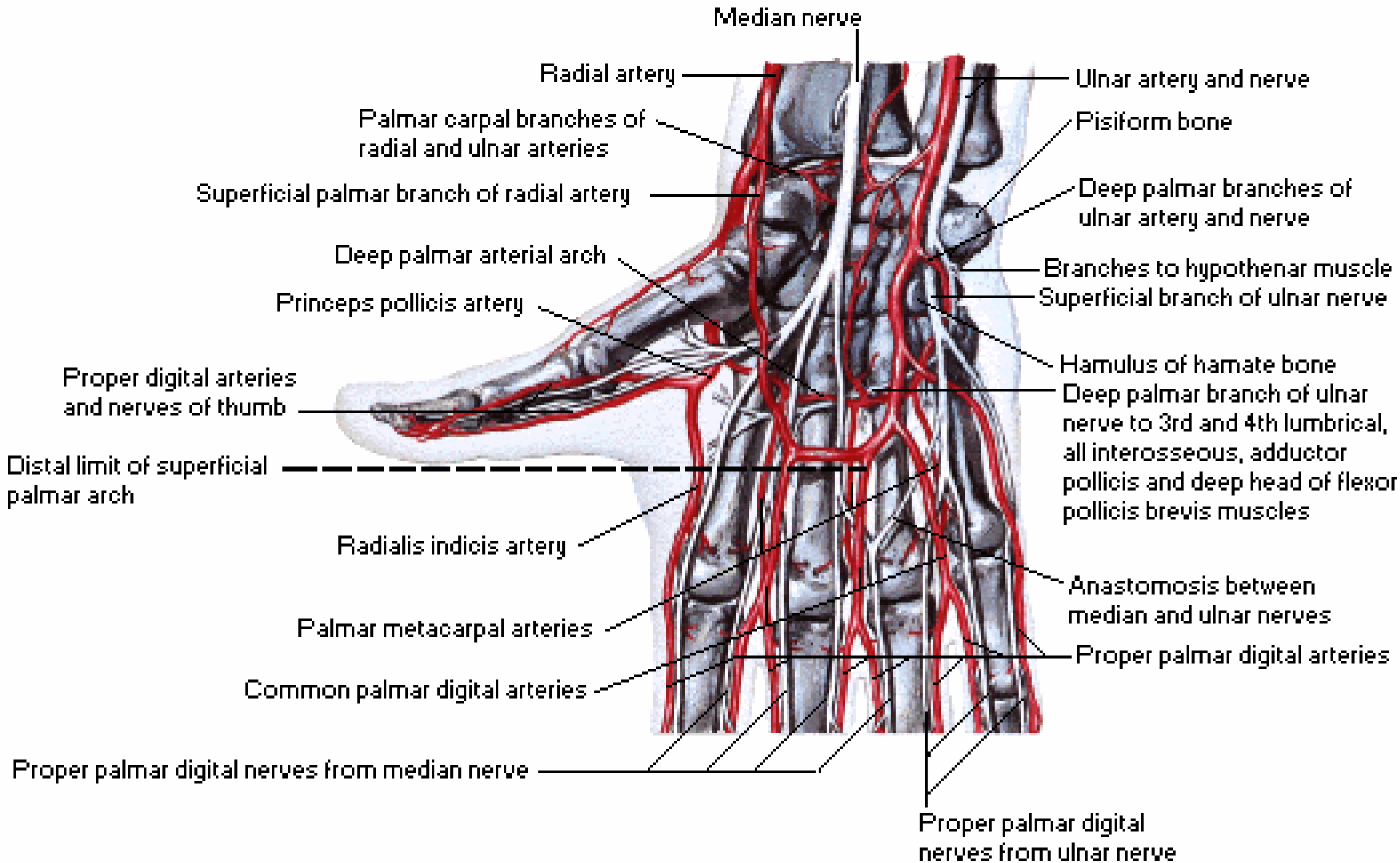


Note: arrows indicate action of muscles

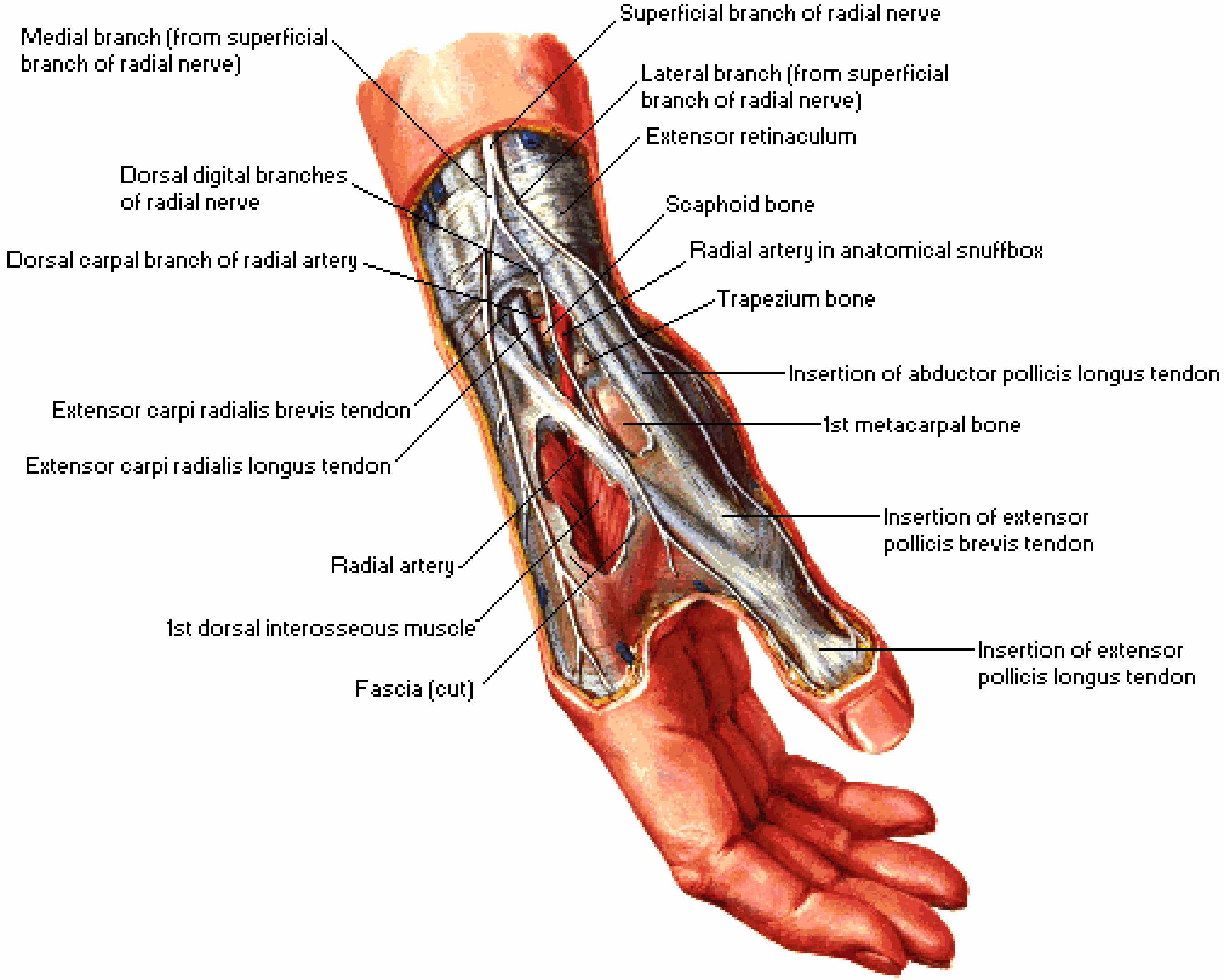
Palmar View


Median nerve
Ulnar artery
Palmar branch of median nerve
Ulnar nerve
Radial artery
Palmar carpal ligament
Superficial palmar branch of radial artery
Flexor retinaculum
Abductor pollicis brevis muscle (cut)
Deep palmar branches of ulnar artery and nerve
Opponens pollicis muscle
Superficial branch of ulnar nerve
Motor branch of median nerve to thenar muscles
Ulnar bursa
Flexor pollicis brevis muscle
Superficial palmar arterial arch
Adductor pollicis muscle
Common palmar digital nerves and arteries
Proper digital nerves and arteries to thumb
Branches of median nerve to 1st and 2nd lumbrical muscles
Flexor tendons, synovial and fibrous sheaths
Proper palmar digital nerves and arteries
Anastomosis between branches of median and ulnar nerves
Branches of proper palmar digital nerves and arteries to dorsum of middle and distal phalanges

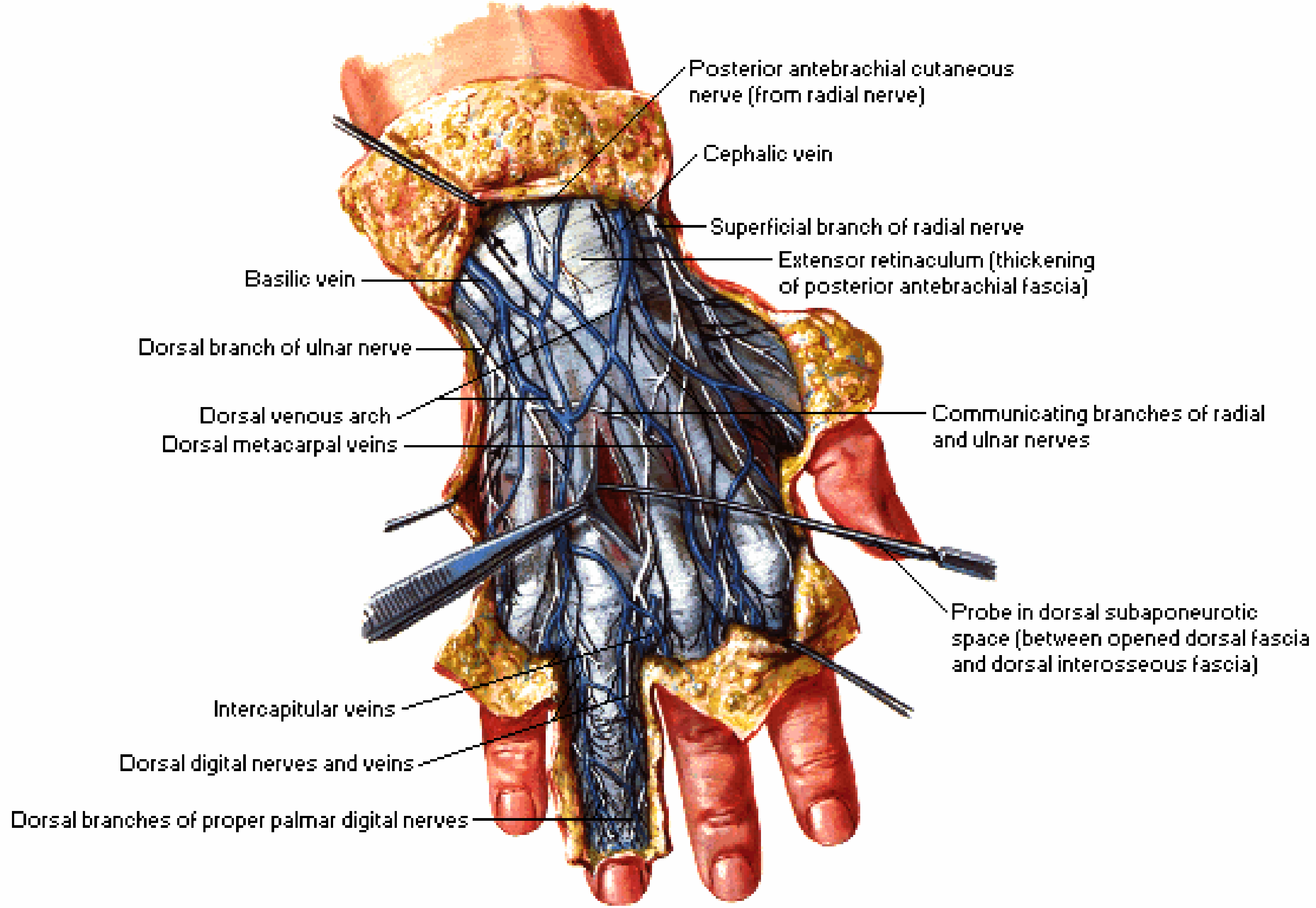
Deep Palmar View



Superficial Radial Dissection

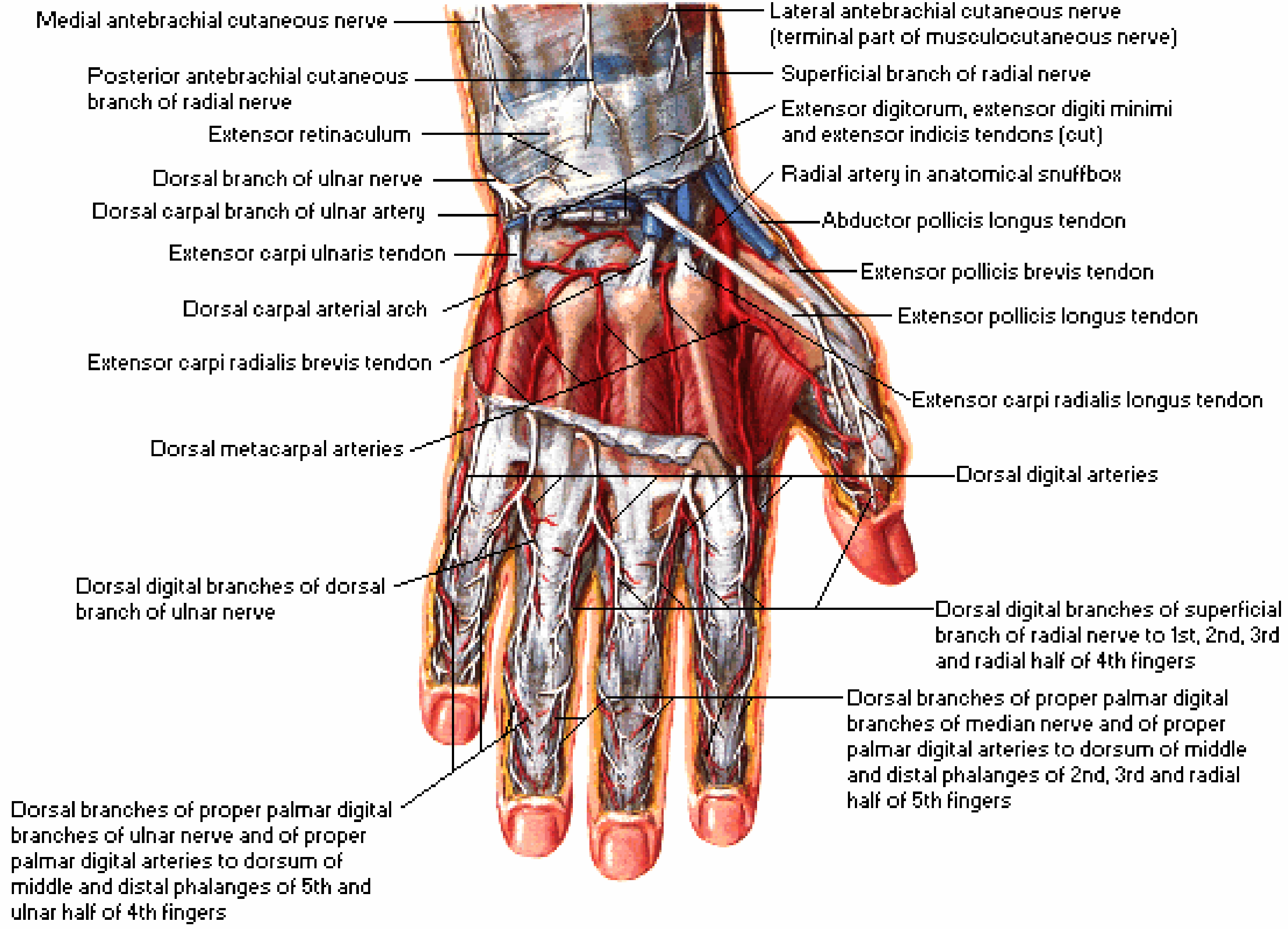


Superficial Dorsal Dissection

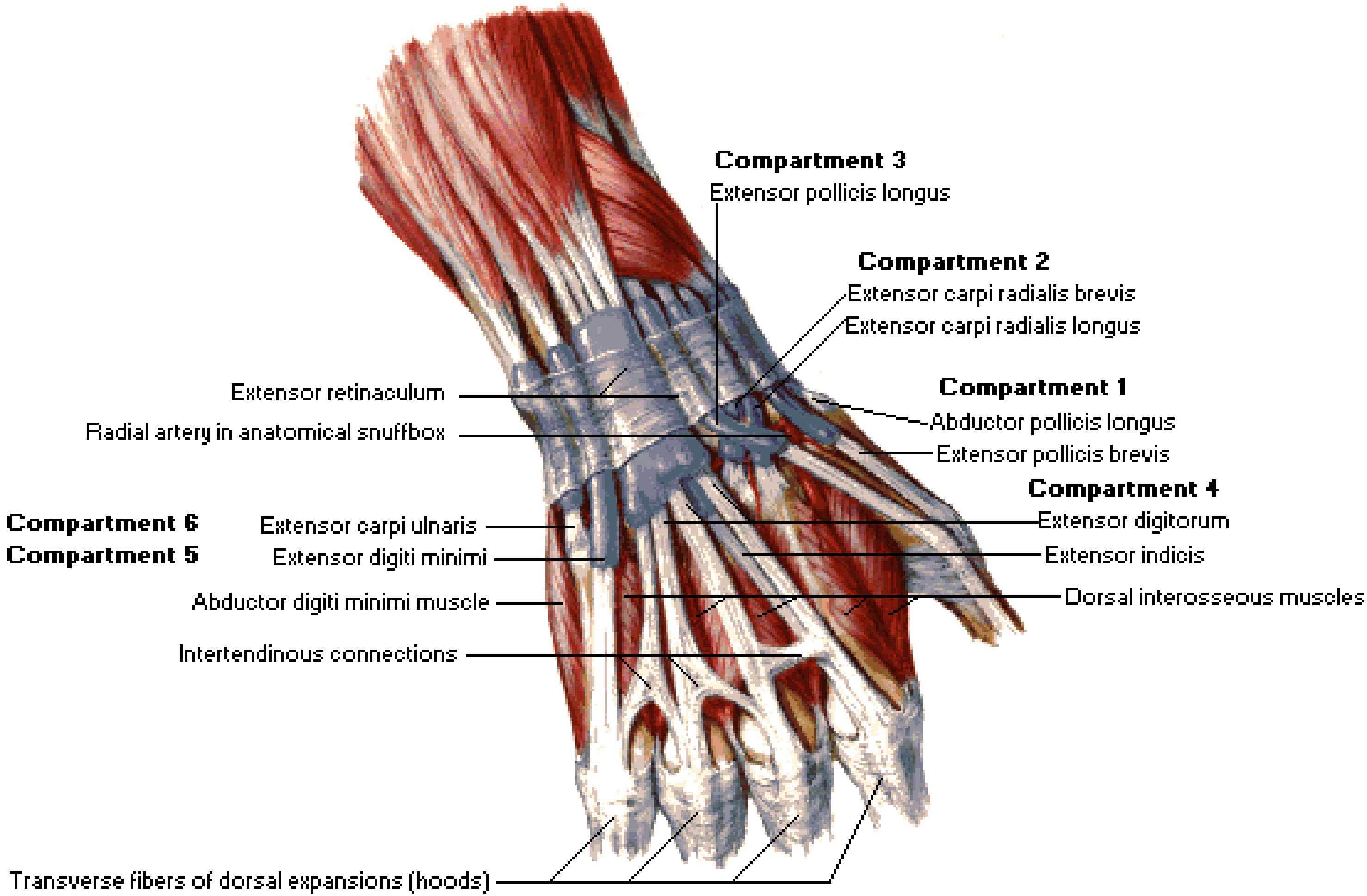


Note: lymphatic pathways shown in black; arrows indicate direction of drainage

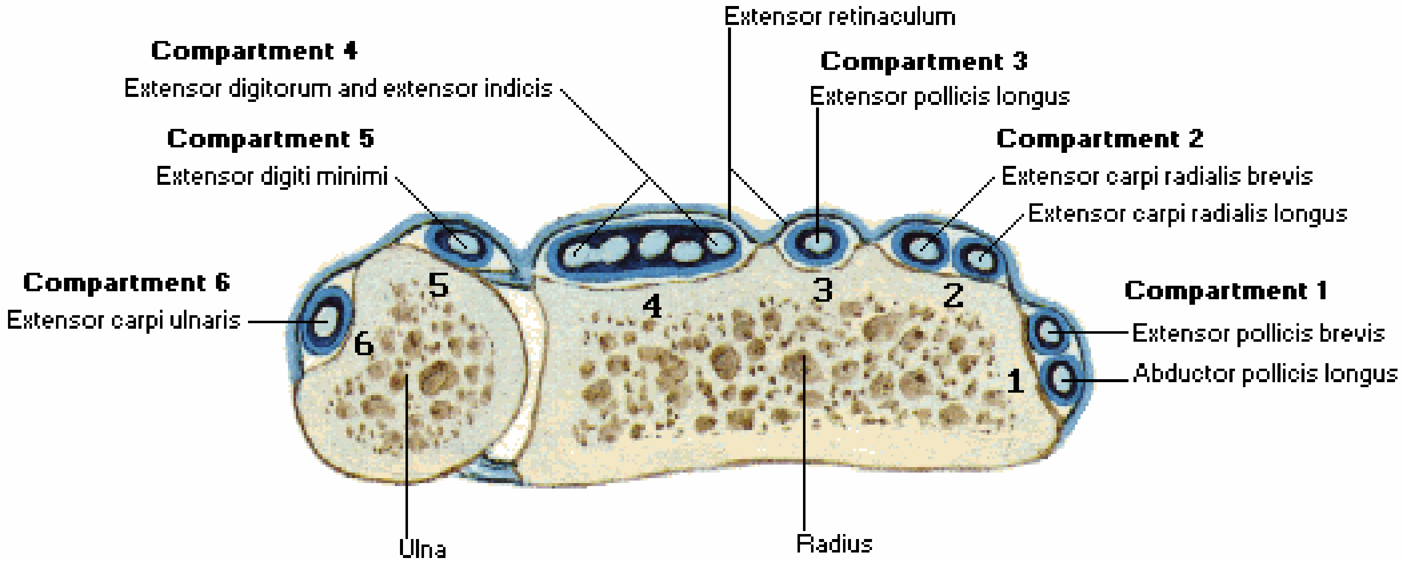
Deep Dorsal Dissection



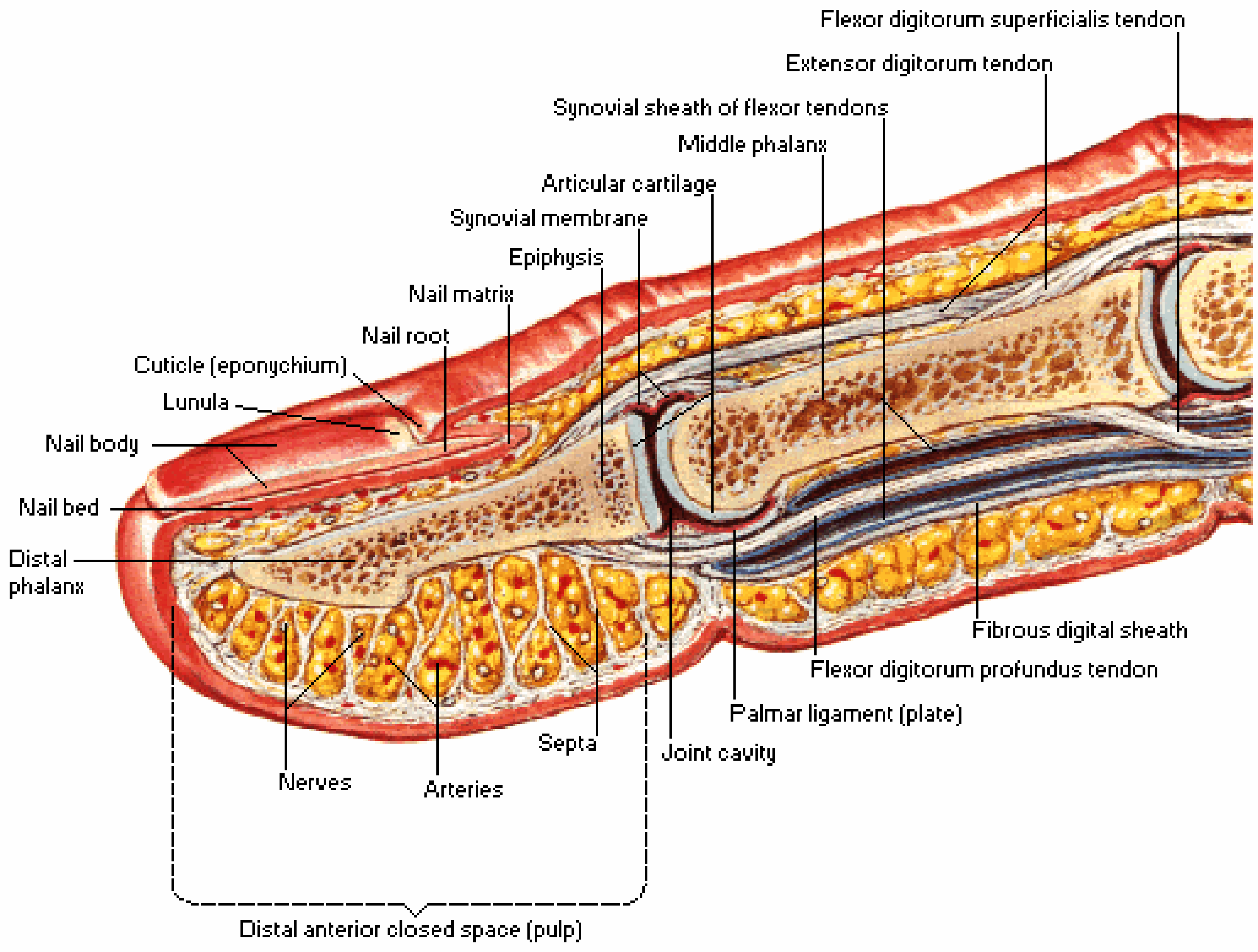
Posterior [Dorsal] View



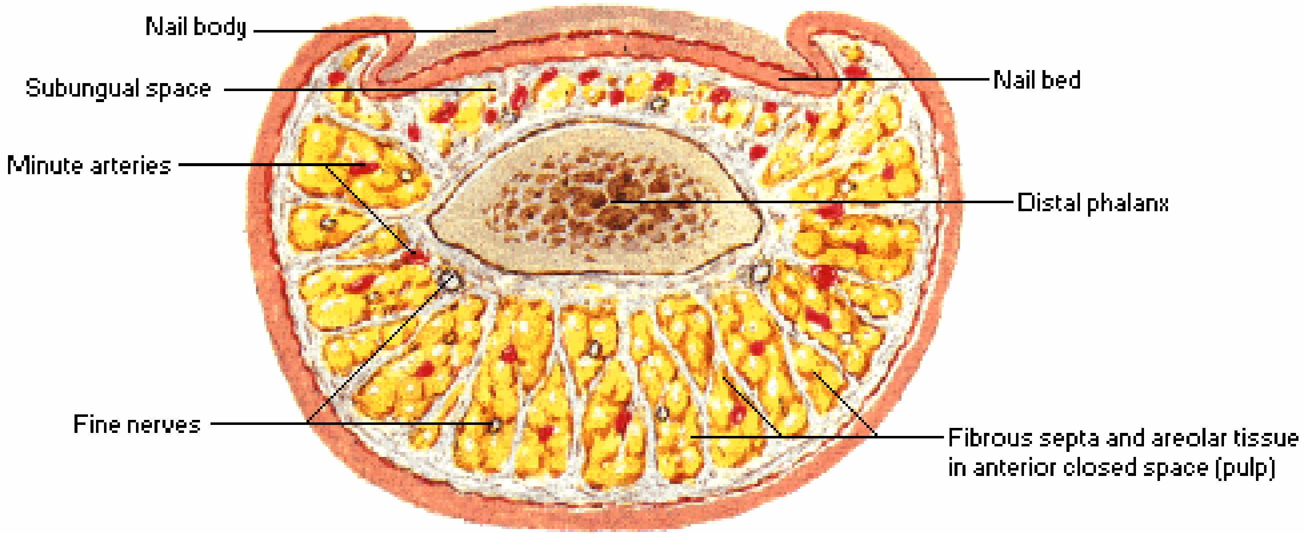
Cross Section at Proximal Wrist



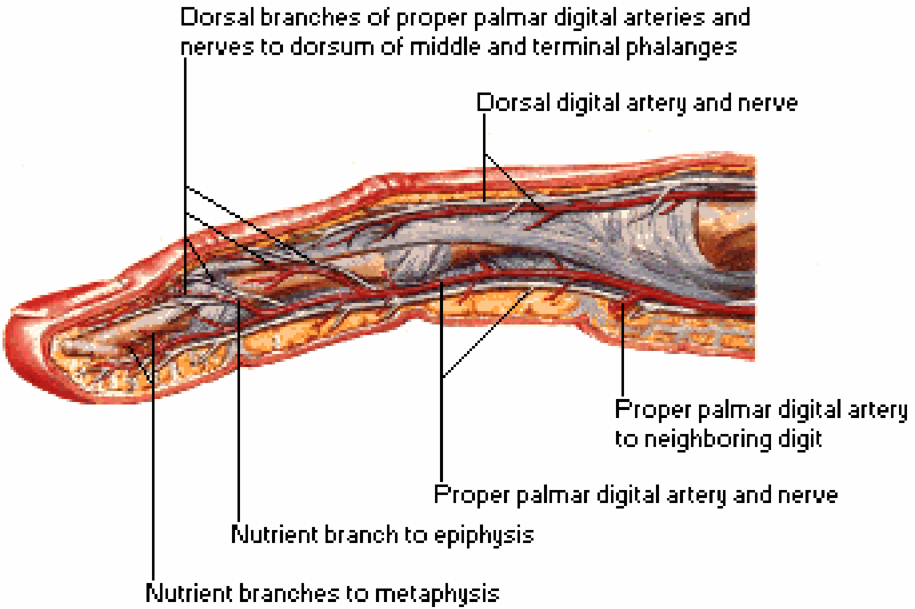
Sagittal Section



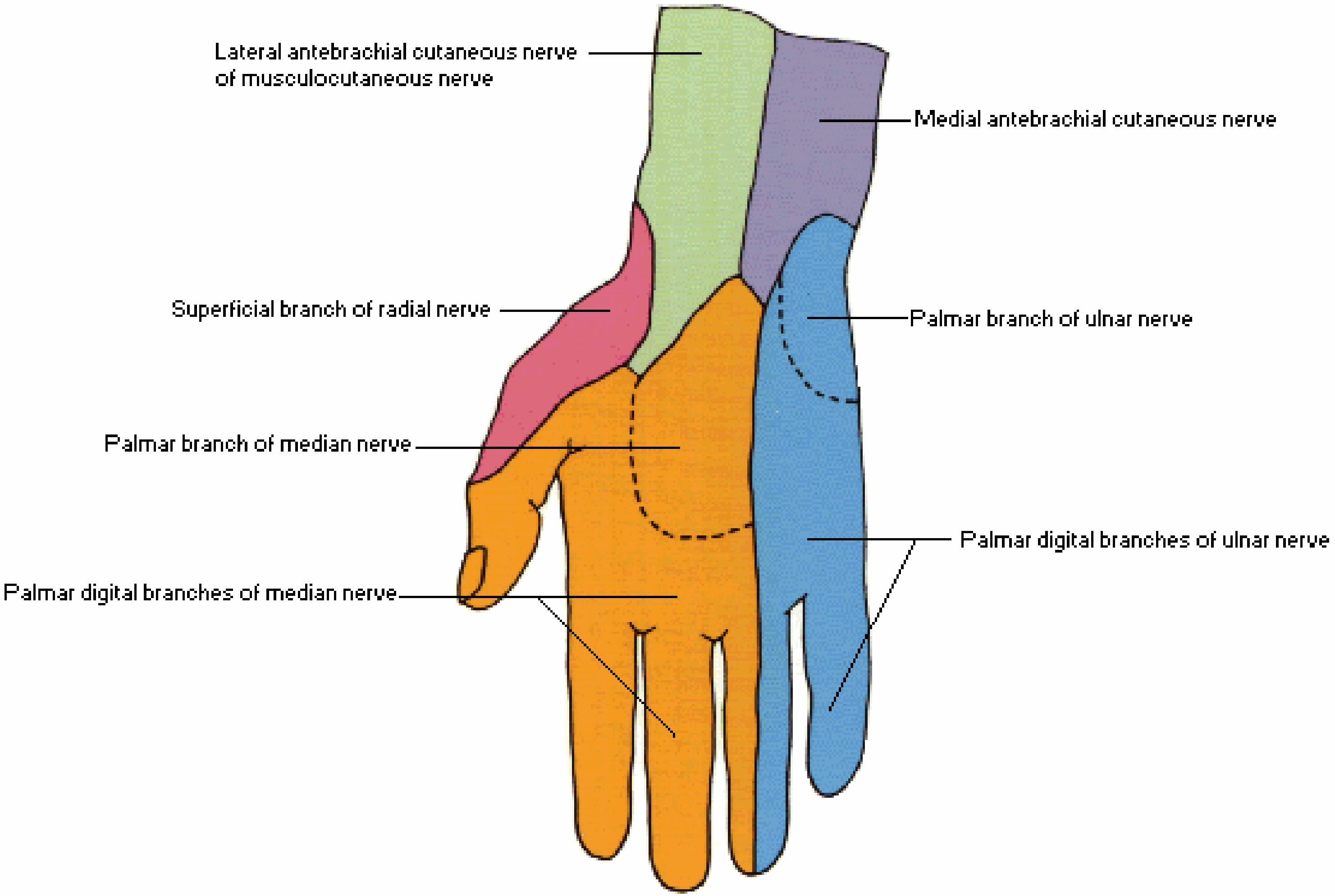
Cross Section through Distal Phalanx



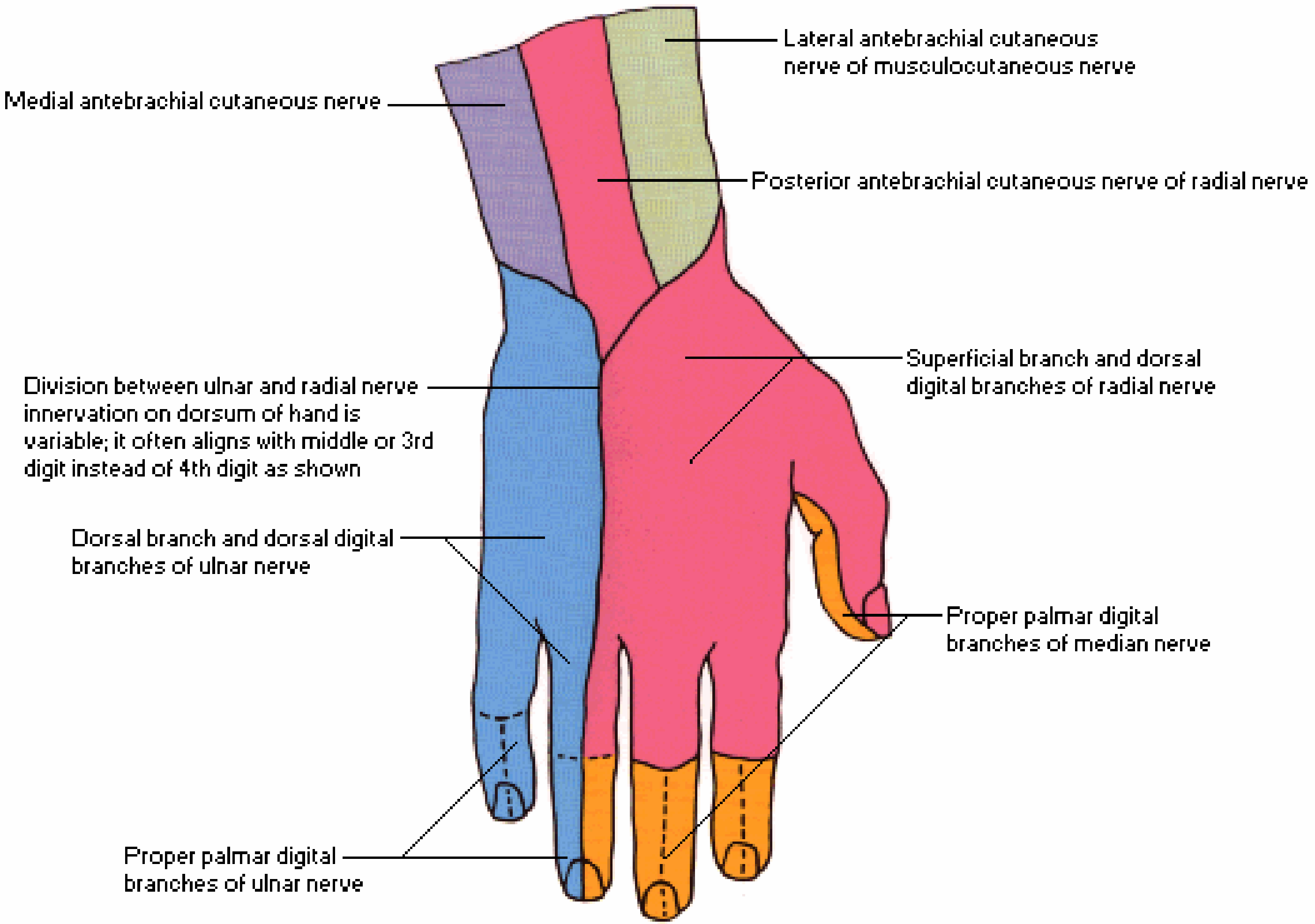
Arteries and Nerves

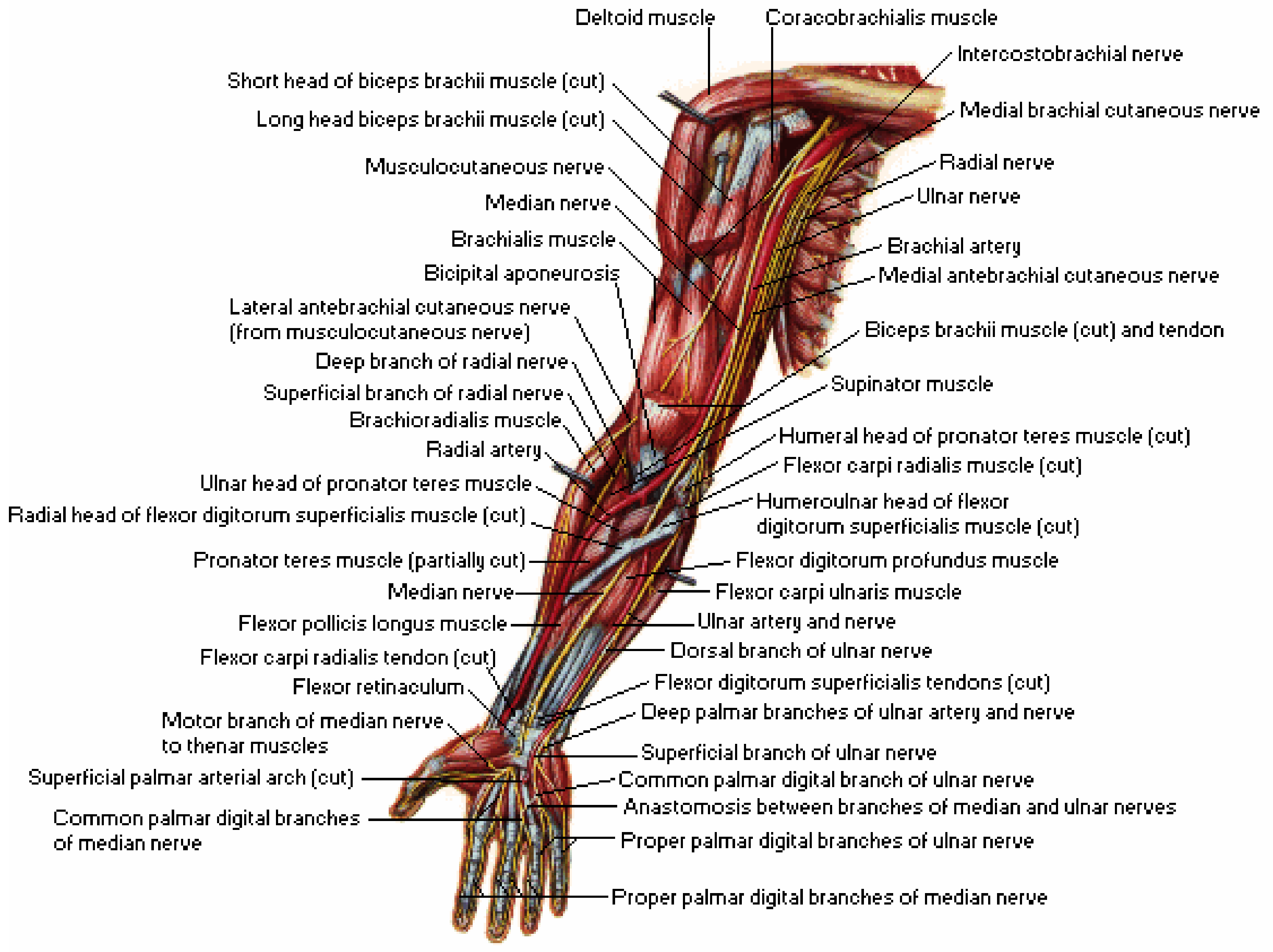


Anterior [Palmar] View

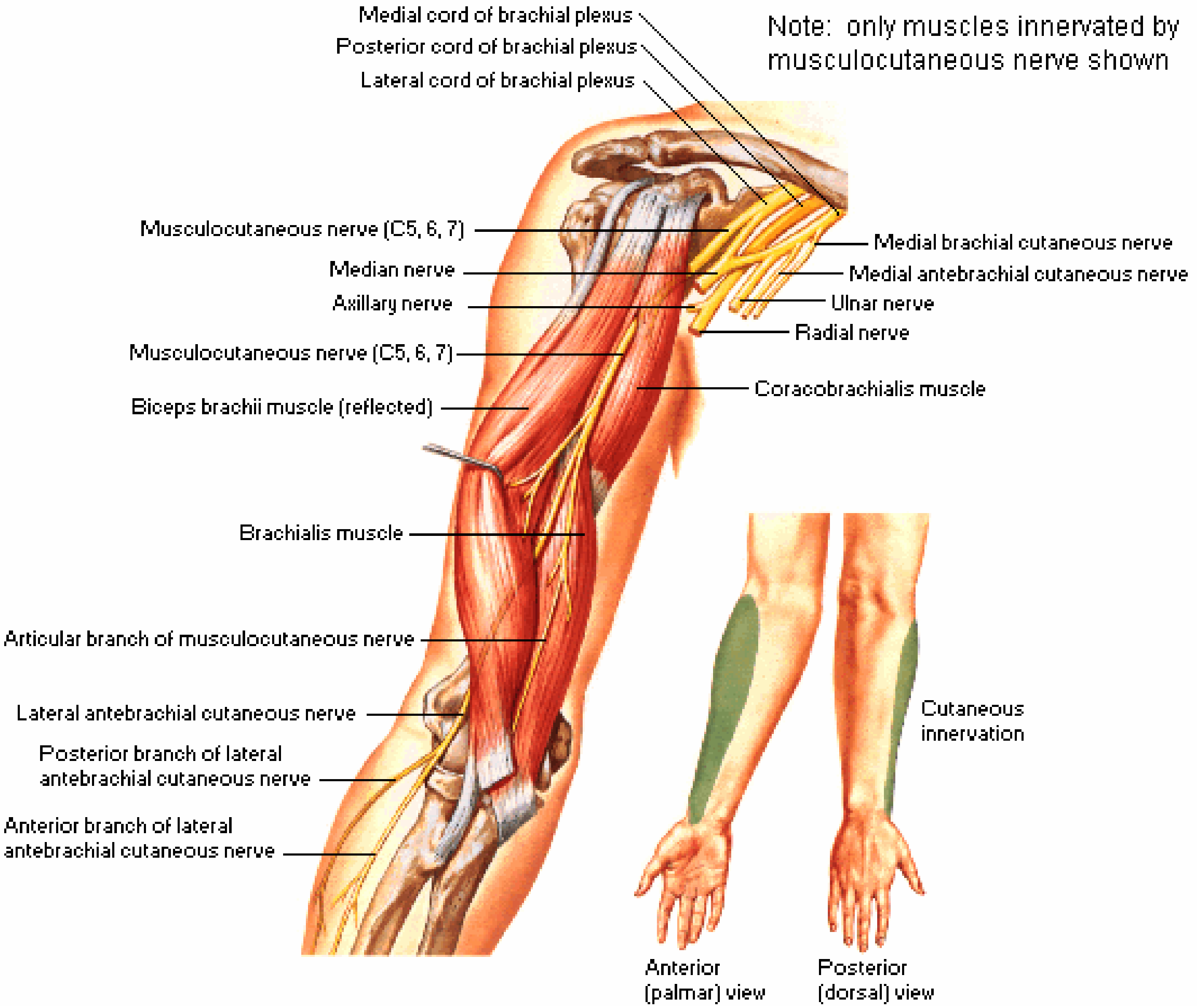


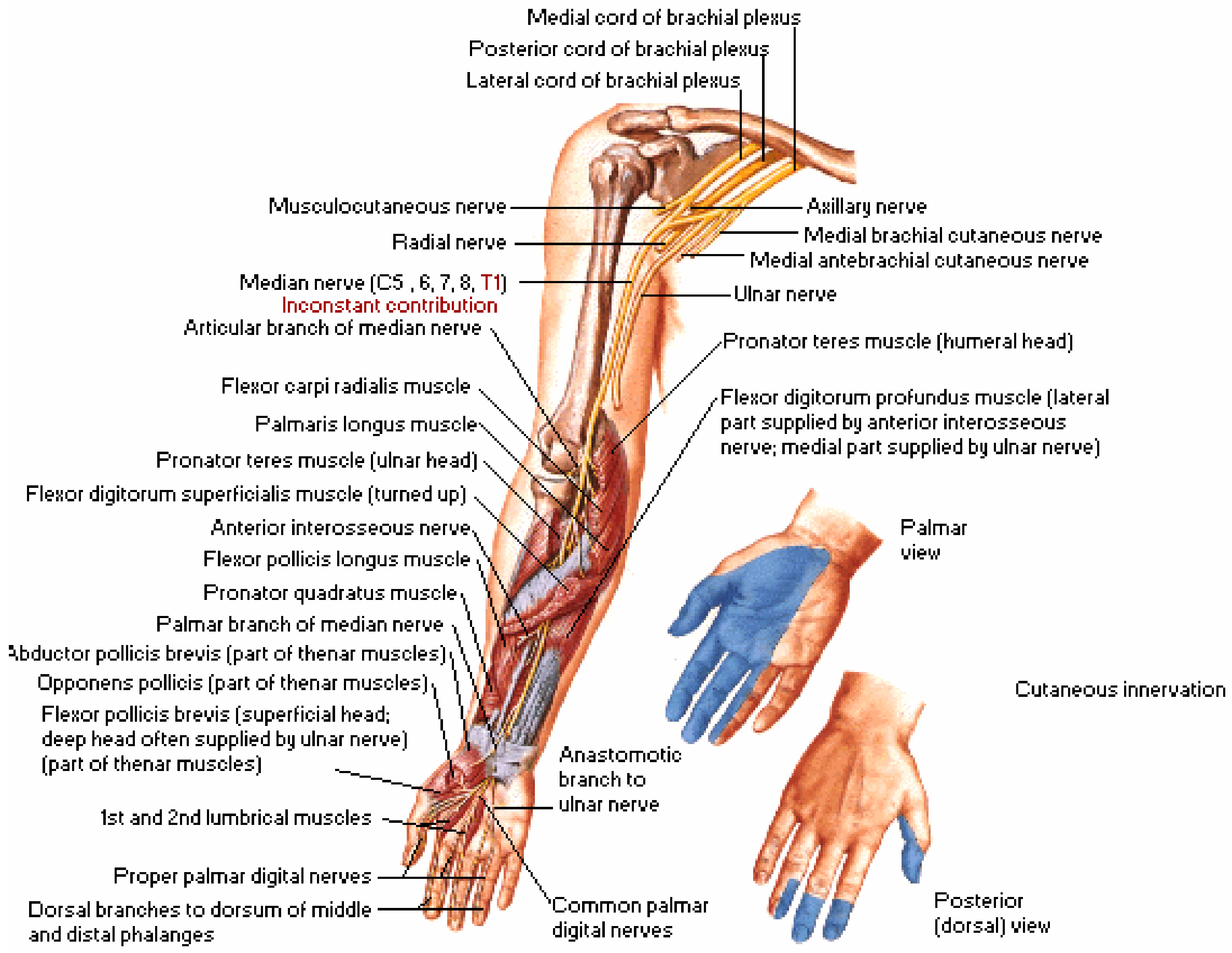
Posterior [Dorsal] View





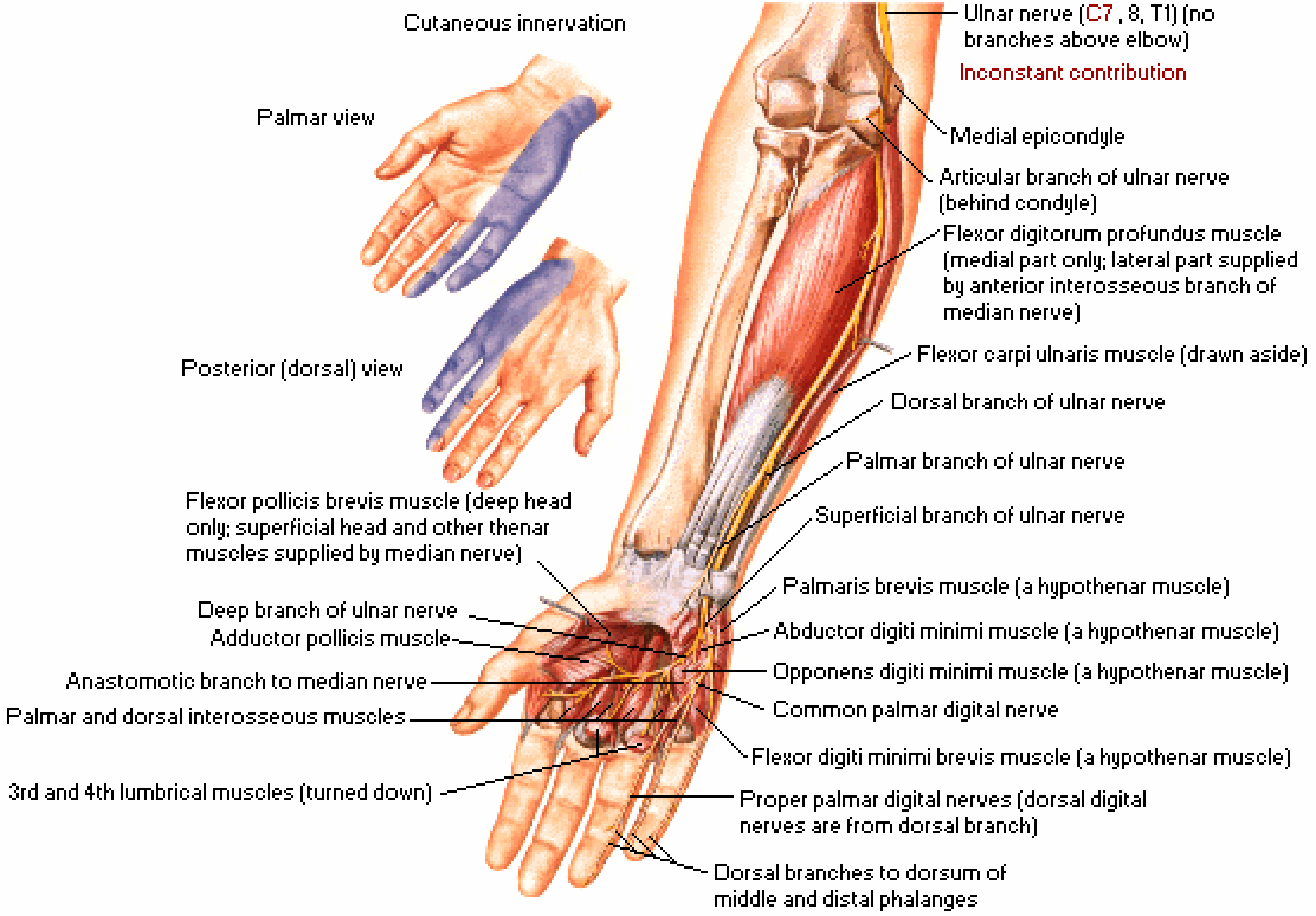
Deltoid muscle
Coracobrachialis muscle
Intercostobrachial nerve
Short head of biceps brachii muscle (cut)
Medial brachial cutaneous nerve
Long head biceps brachii muscle (cut)
Radial nerve
Musculocutaneous nerve
Ulnar nerve
Median nerve
Brachialis muscle
Brachial artery
Bicipital aponeurosis
Medial antebrachial cutaneous nerve
Lateral antebrachial cutaneous nerve (from musculocutaneous nerve)
Biceps brachii muscle (cut) and tendon
Deep branch of radial nerve
Supinator muscle
Superficial branch of radial nerve
Brachioradialis muscle
Humeral head of pronator teres muscle (cut)
Radial artery
Flexor carpi radialis muscle (cut)
Ulnar head of pronator teres muscle
Humeroulnar head of flexor digitorum superficialis muscle (cut)
Radial head of flexor digitorum superficialis muscle (cut)
Pronator teres muscle (partially cut)
Flexor digitorum profundus muscle
Median nerve
Flexor carpi ulnaris muscle
Flexor pollicis longus muscle
Ulnar artery and nerve
Flexor carpi radialis tendon (cut)
Dorsal branch of ulnar nerve
Flexor retinaculum
Flexor digitorum superficialis tendons (cut)
Deep palmar branches of ulnar artery and nerve
Motor branch of median nerve to thenar muscles
Superficial branch of ulnar nerve
Superficial palmar arterial arch (cut)
Common palmar digital branch of ulnar nerve
Anastomosis between branches of median and ulnar nerves
Common palmar digital branches of median nerve
Proper palmar digital branches of ulnar nerve
Proper palmar digital branches of median nerve

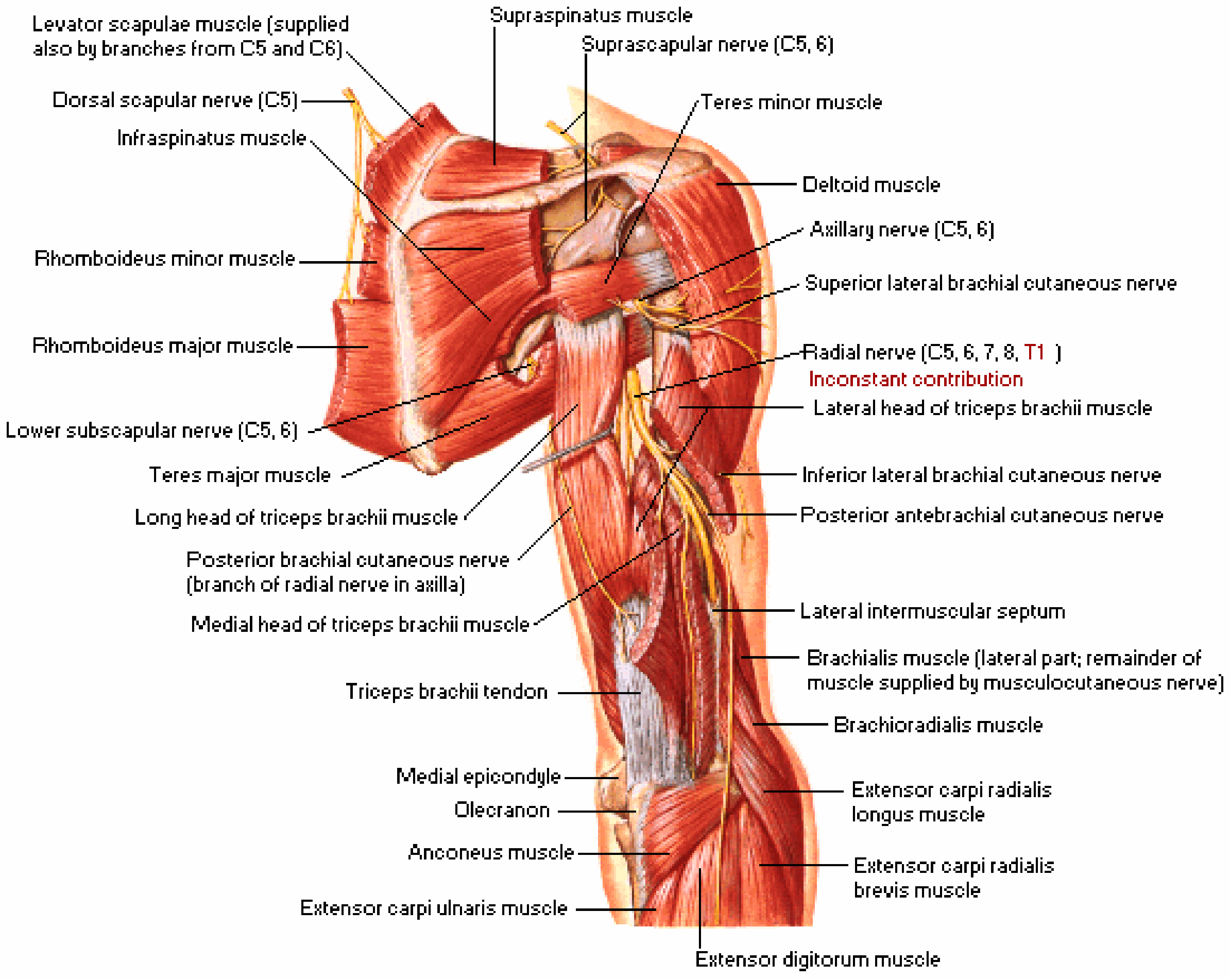

Note: only muscles innervated by musculocutaneous nerve shown
Medial cord of brachial plexus
Posterior cord of brachial plexus
Lateral cord of brachial plexus
Musculocutaneous nerve (C5, 6, 7)
Median nerve
Axillary nerve
Musculocutaneous nerve (C5, 6, 7)
Biceps brachii muscle (reflected)
Brachialis muscle
Articular branch of musculocutaneous nerve
Lateral antebrachial cutaneous nerve
Posterior branch of lateral antebrachial cutaneous nerve
Anterior branch of lateral antebrachial cutaneous nerve
Medial brachial cutaneous nerve
Medial antebrachial cutaneous nerve
Ulnar nerve
Radial nerve
Coracobrachialis muscle
Cutaneous innervation
Anterior (palmar) view
Posterior (dorsal) view



Medial cord of brachial plexus
Posterior cord of brachial plexus
Lateral cord of brachial plexus
Musculocutaneous nerve
Radial nerve
Median nerve (C5 , 6, 7, 8, T1)
Inconstant contribution
Articular branch of median nerve
Flexor carpi radialis muscle
Palmaris longus muscle
Pronator teres muscle (ulnar head)
Flexor digitorum superficialis muscle (turned up)
Anterior interosseous nerve
Flexor pollicis longus muscle
Pronator quadratus muscle
Palmar branch of median nerve
Abductor pollicis brevis (part of thenar muscles)
Opponens pollicis (part of thenar muscles)
Flexor pollicis brevis (superficial head; deep head often supplied by ulnar nerve) (part of thenar muscles)
1st and 2nd lumbrical muscles
Proper palmar digital nerves
Dorsal branches to dorsum of middle and distal phalanges
Axillary nerve
Medial brachial cutaneous nerve
Medial antebrachial cutaneous nerve
Ulnar nerve
Pronator teres muscle (humeral head)
Flexor digitorum profundus muscle (lateral part supplied by anterior interosseous nerve; medial part supplied by ulnar nerve)
Palmar view
Cutaneous innervation
Anastomotic branch to ulnar nerve
Common palmar digital nerves
Posterior (dorsal) view

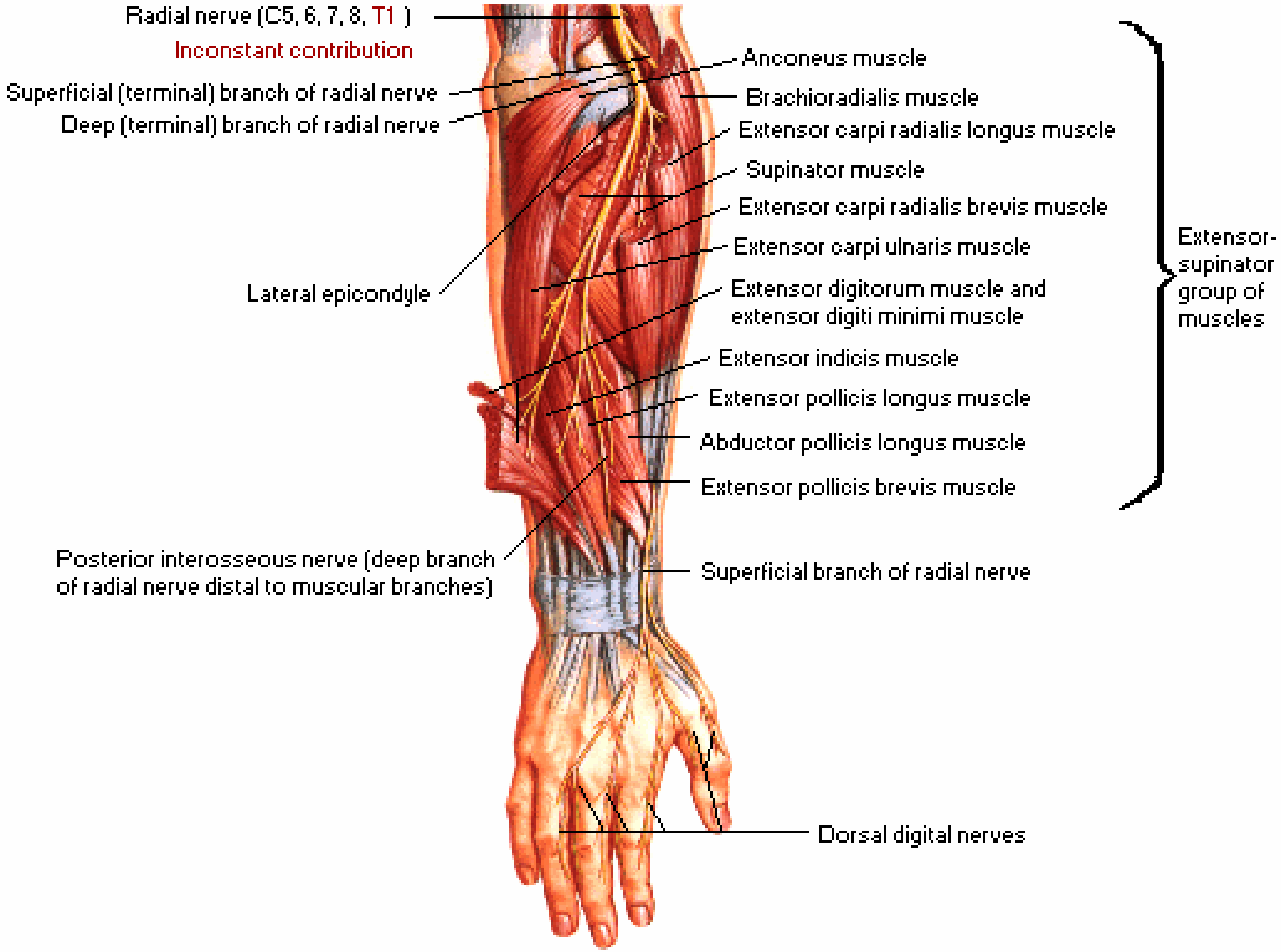
Note: only muscles innervated by ulnar nerve shown



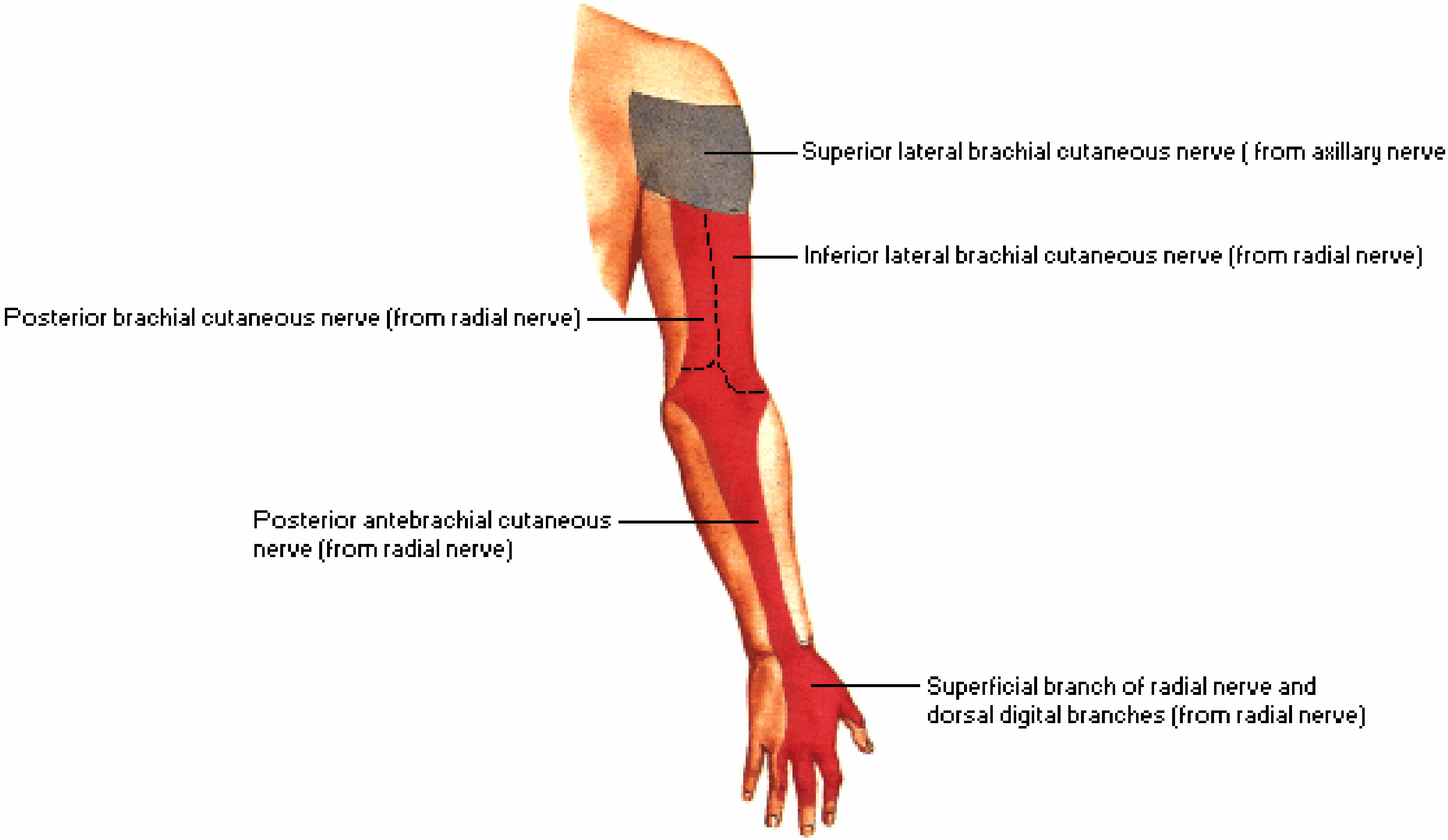


Levator scapulae muscle (supplied also by branches from C5 and C6)
Supraspinatus muscle
Suprascapular nerve (C5, 6)
Dorsal scapular nerve (C5)
Teres minor muscle
Infraspinatus muscle
Deltoid muscle
Axillary nerve (C5, 6)
Rhomboideus minor muscle
Superior lateral brachial cutaneous nerve
Rhomboideus major muscle
Radial nerve (C5, 6, 7, 8, T1)
Inconstant contribution
Lateral head of triceps brachii muscle
Lower subscapular nerve (C5, 6)
Teres major muscle
Inferior lateral brachial cutaneous nerve
Long head of triceps brachii muscle
Posterior antebrachial cutaneous nerve
Posterior brachial cutaneous nerve (branch of radial nerve in axilla)
Medial head of triceps brachii muscle
Lateral intermuscular septum
Brachialis muscle (lateral part; remainder of muscle supplied by musculocutaneous nerve)
Triceps brachii tendon
Brachioradialis muscle
Medial epicondyle
Extensor carpi radialis longus muscle
Olecranon
Anconeus muscle
Extensor carpi radialis brevis muscle
Extensor carpi ulnaris muscle
Extensor digitorum muscle

Posterior View

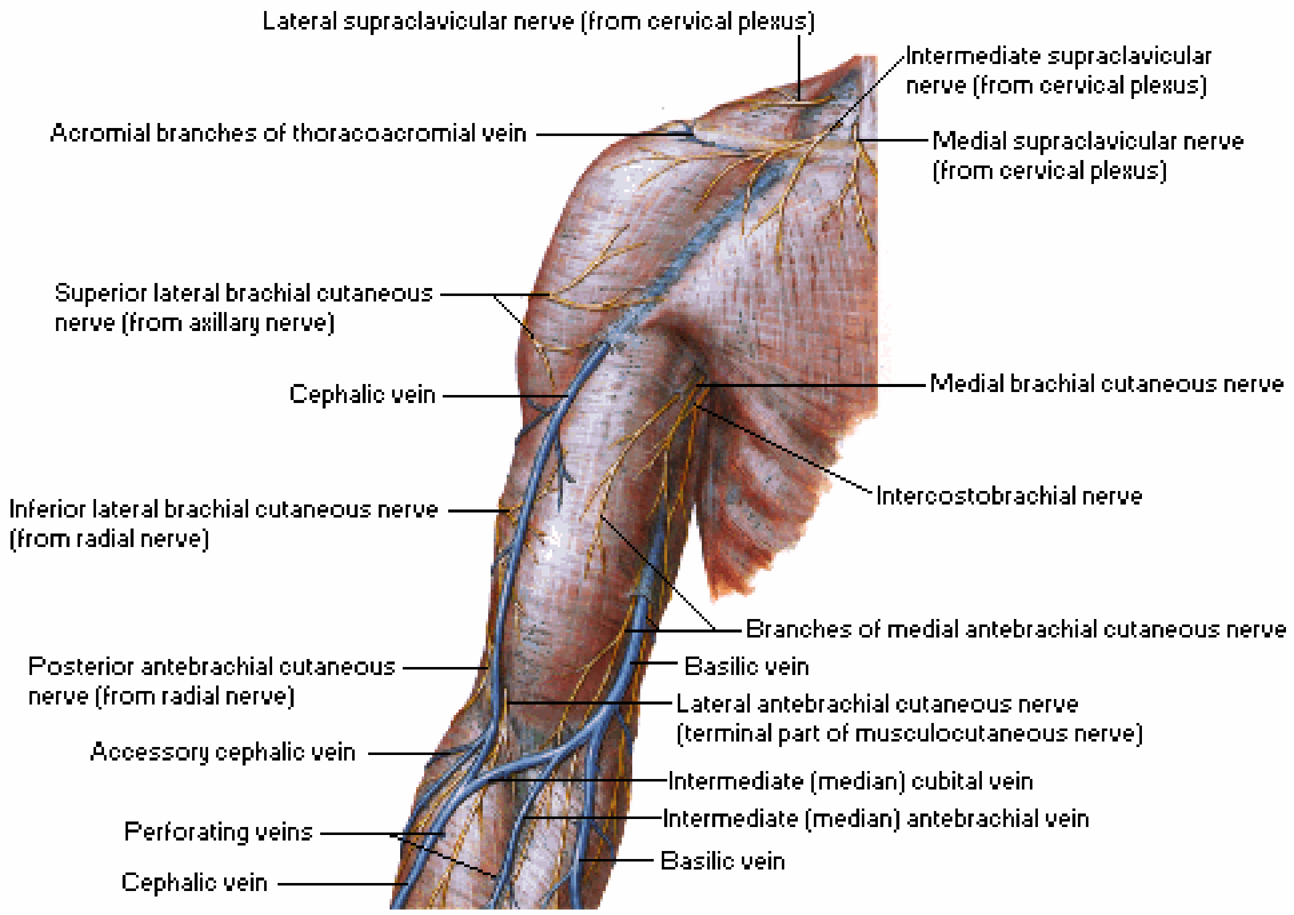


Cutaneous Innervation

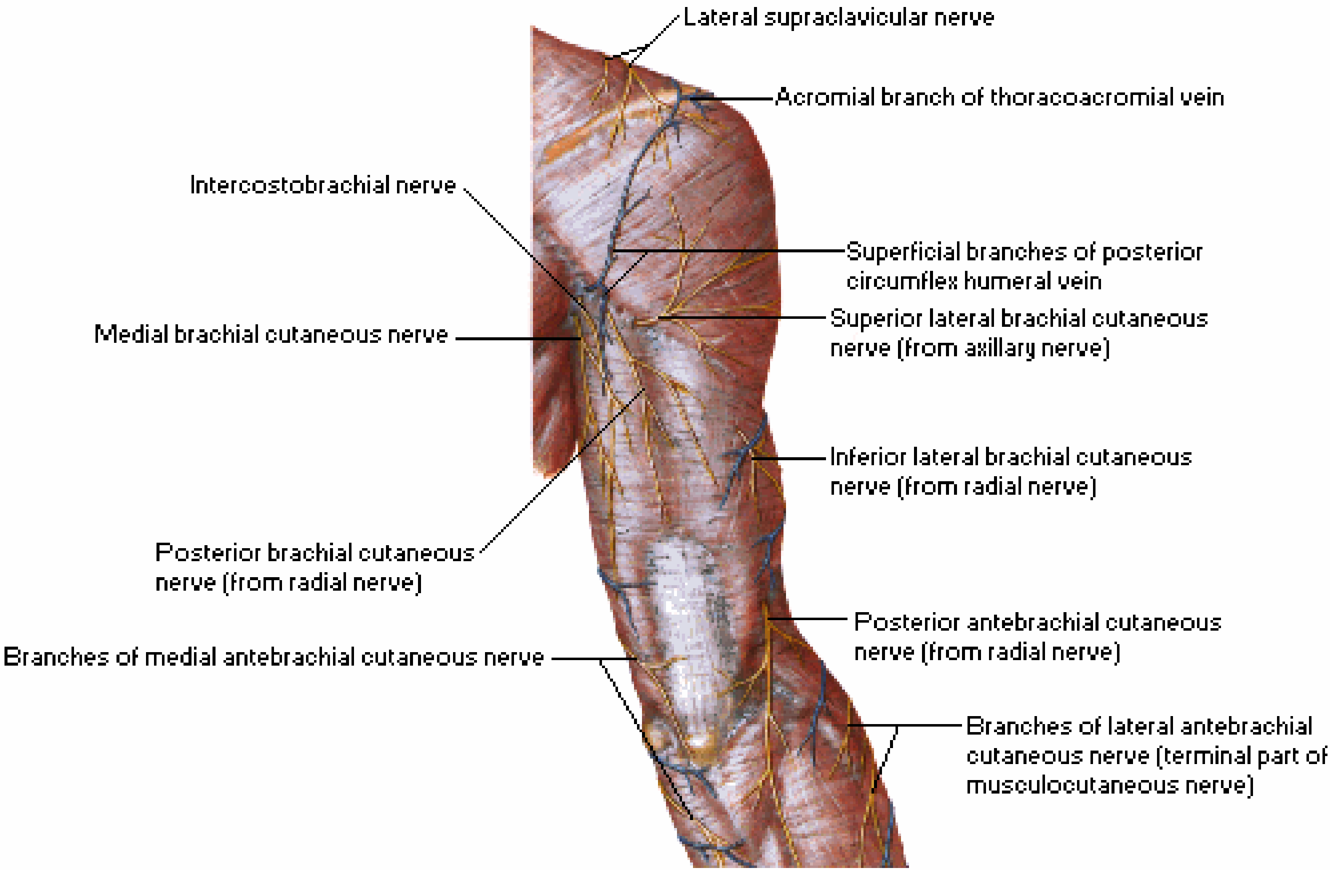


Posterior View

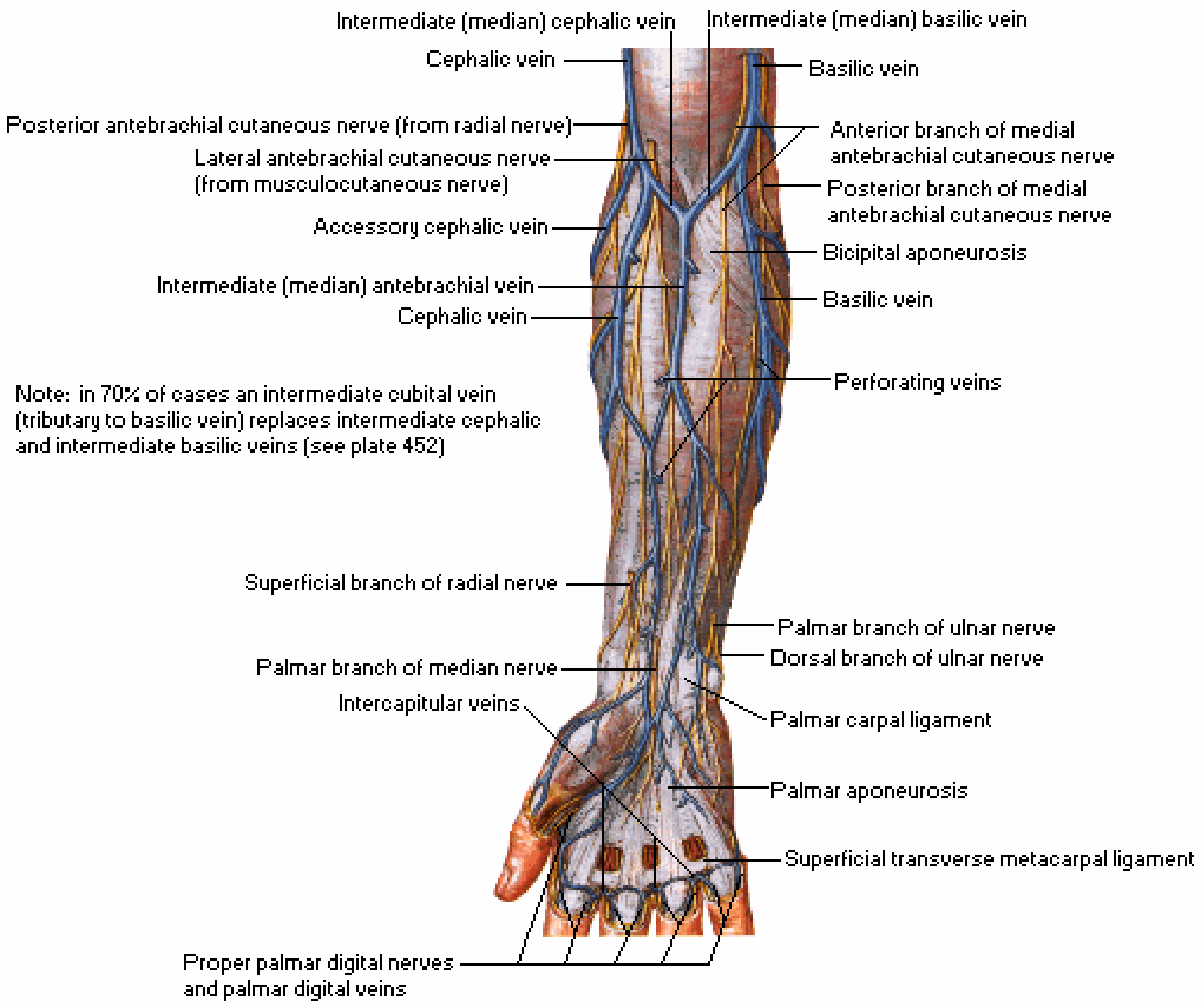
Anterior View



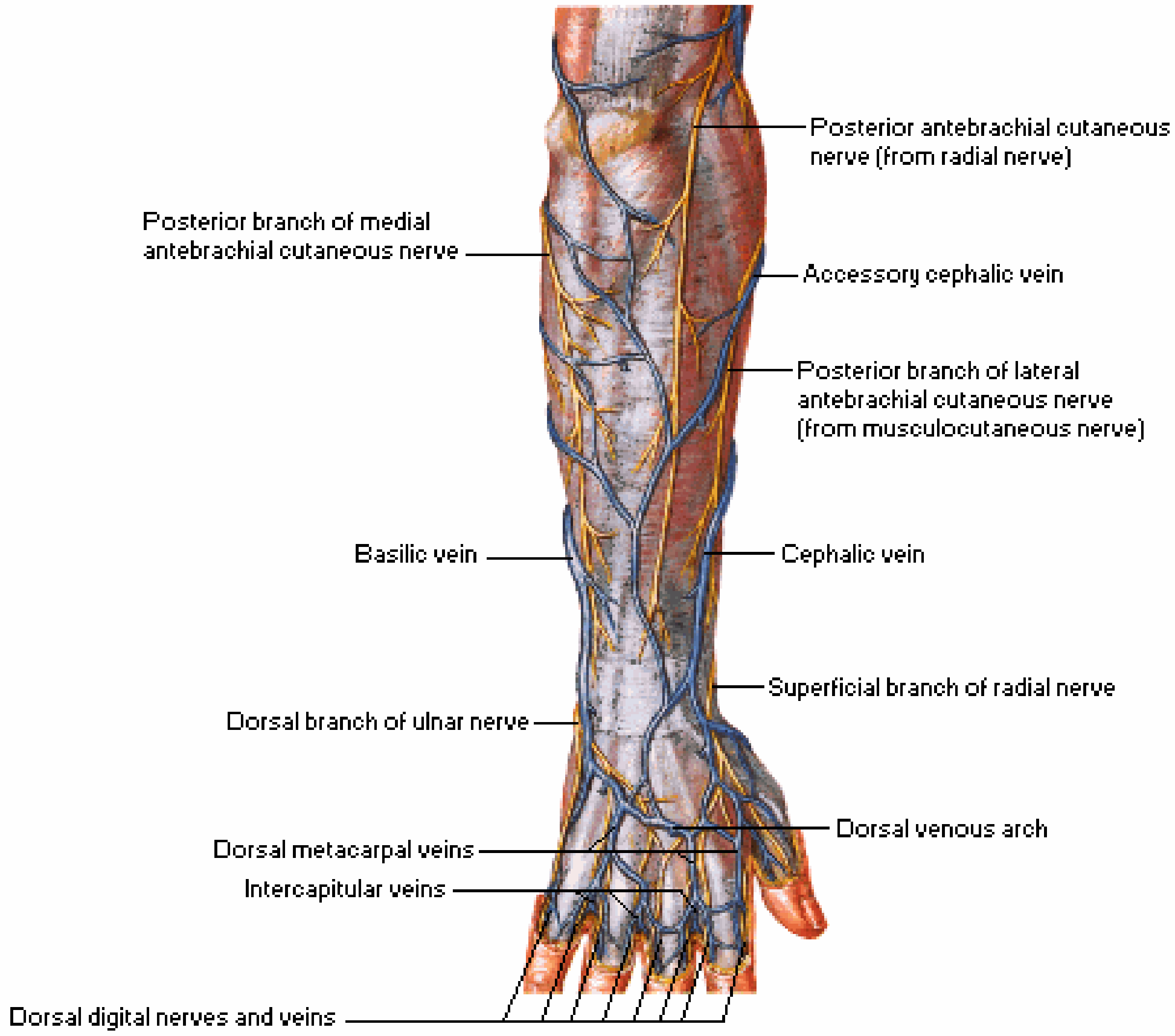
Posterior View



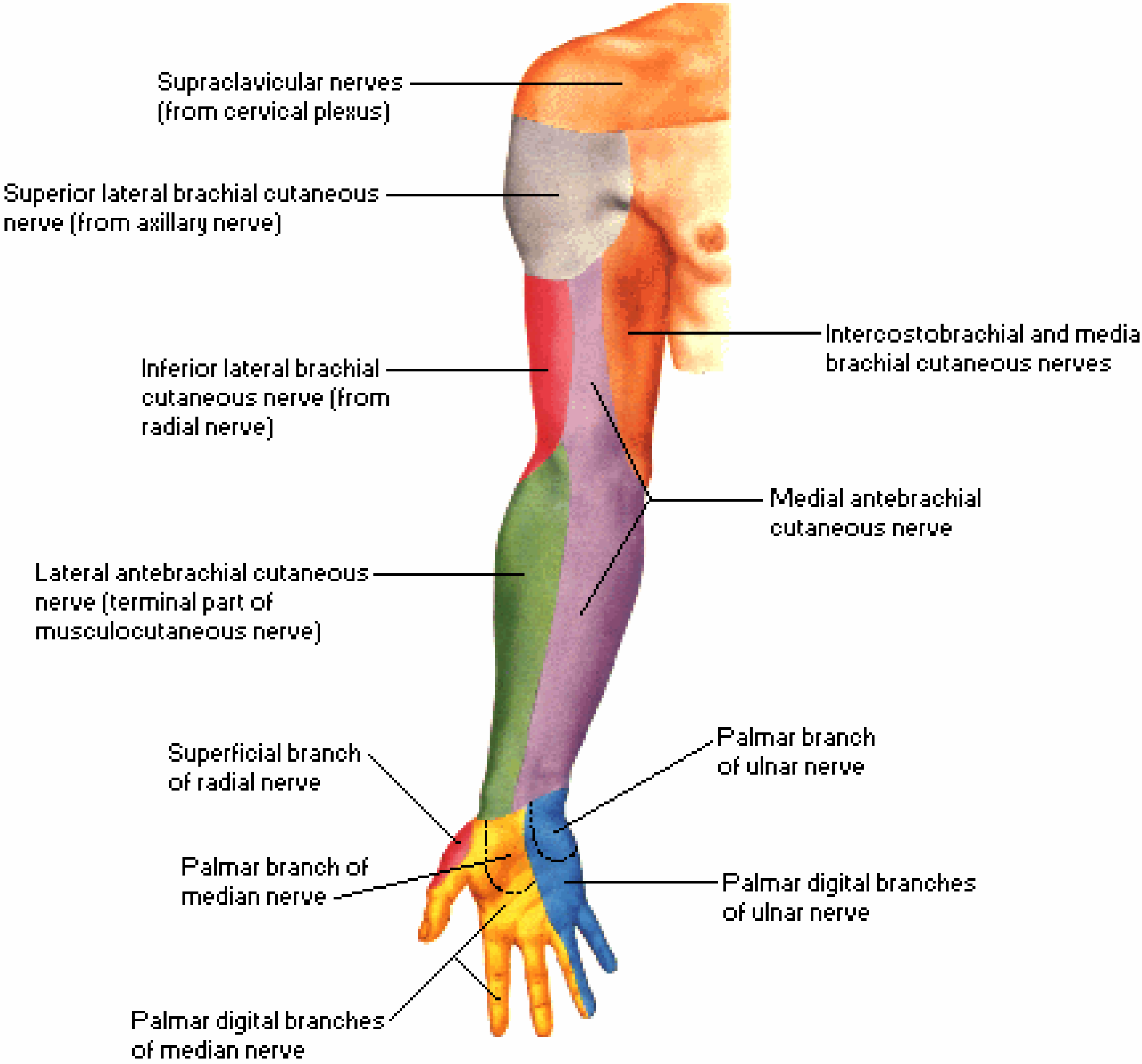
Anterior (Palmar) View



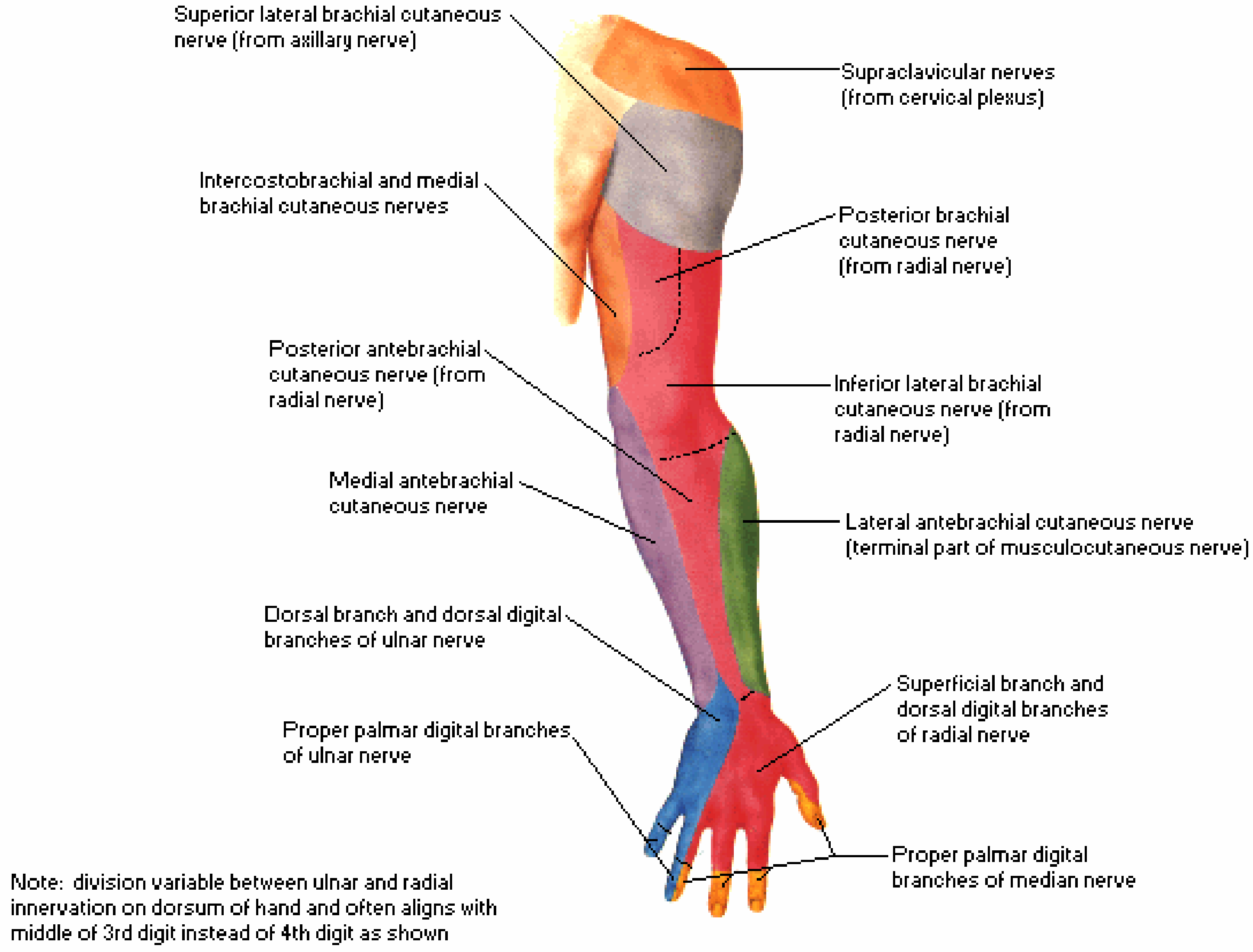
Posterior (Dorsal) View



Anterior [Palmar] View

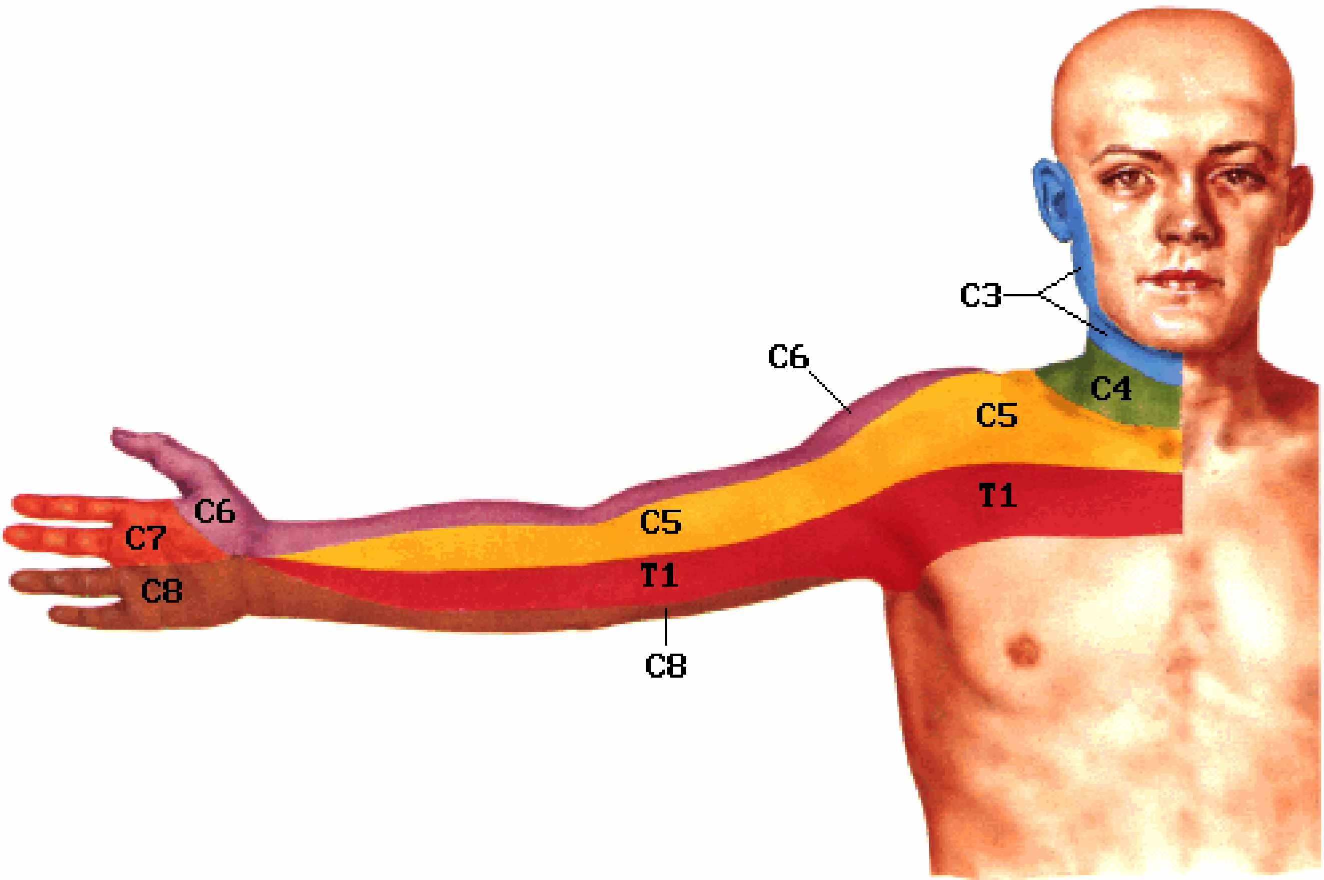


Posterior [Dorsal] View



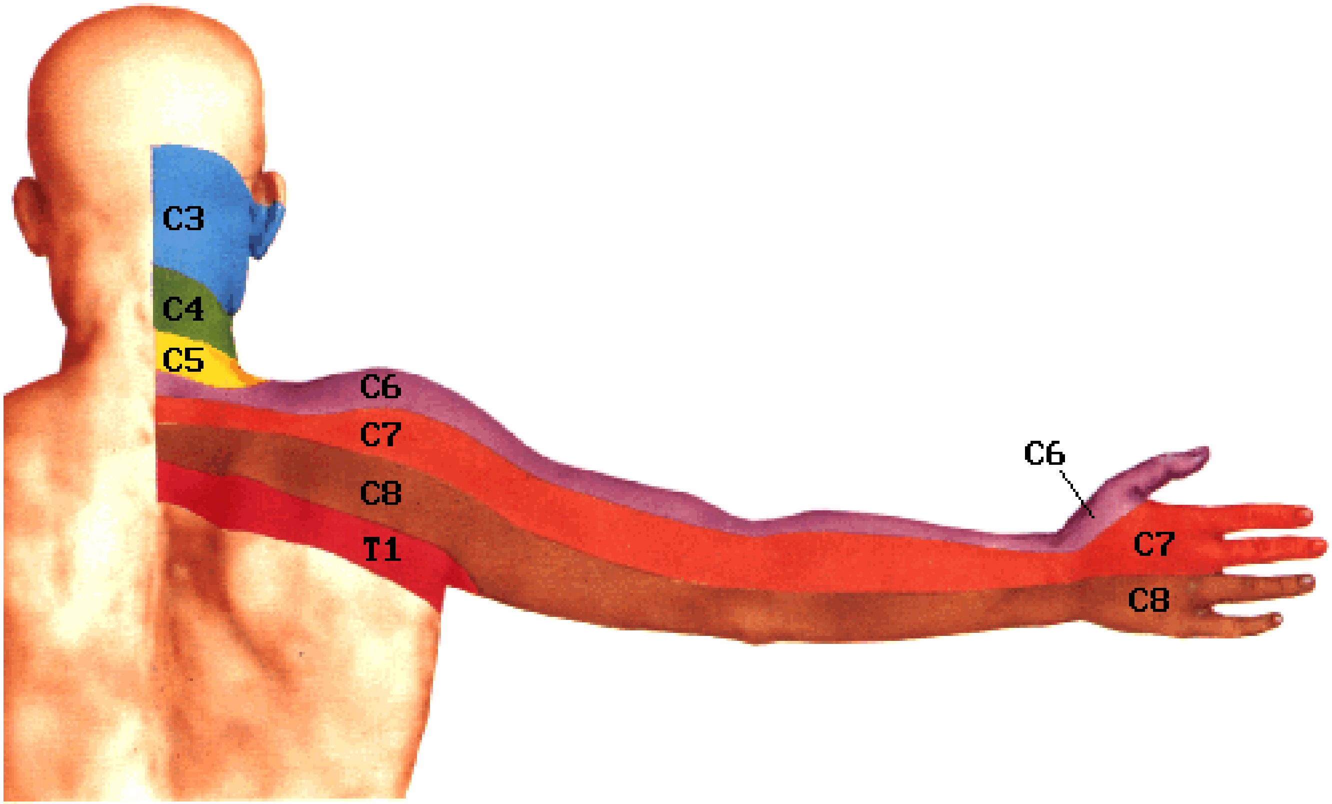
Note: division variable between ulnar and radial innervation on dorsum of hand and often aligns with middle of 3rd digit instead of 4th digit as shown

Anterior View

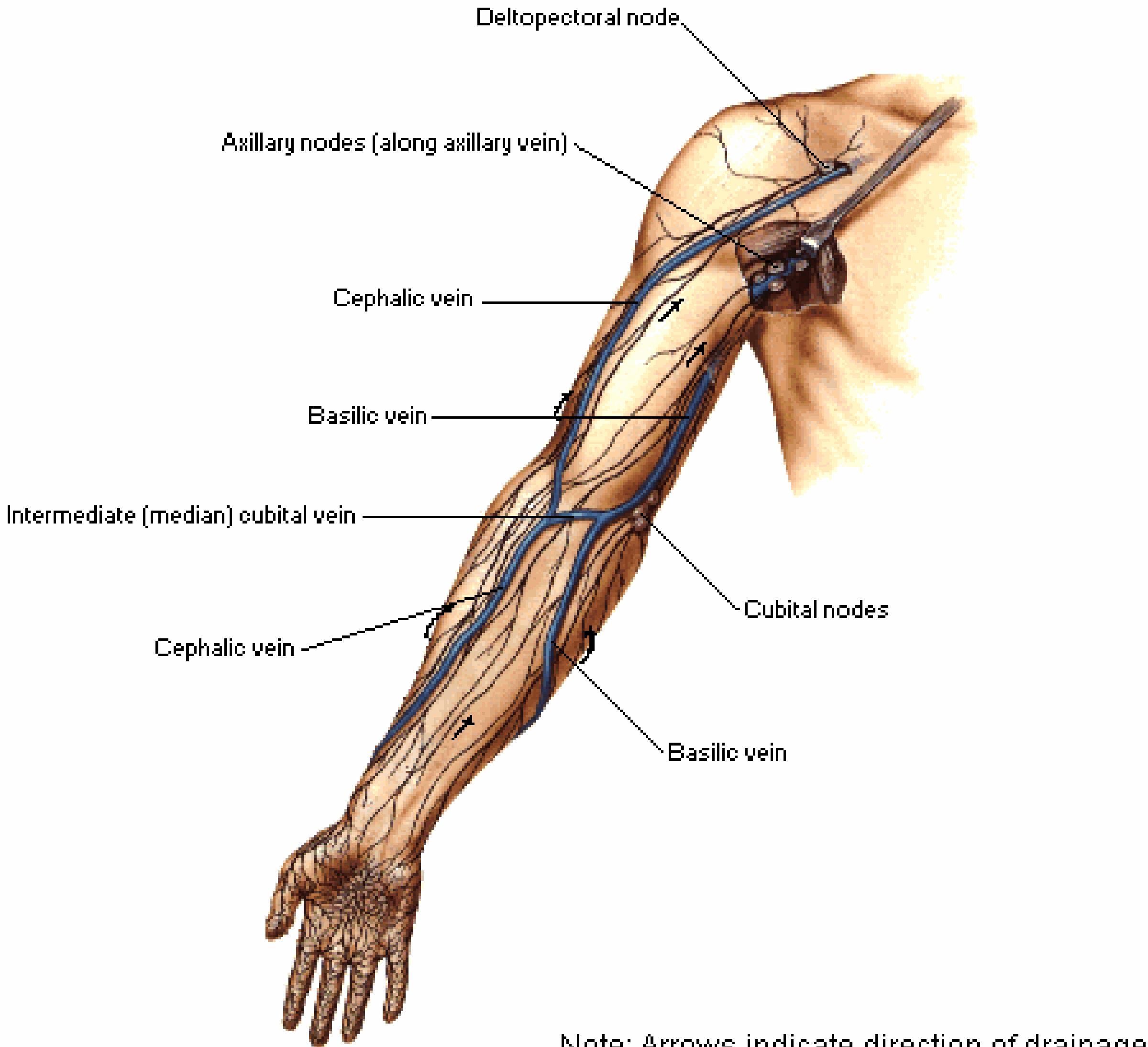


Note: schematic demarcation of dermatomes shown as distinct segments. There is actually considerable overlap between adjacent dermatomes.

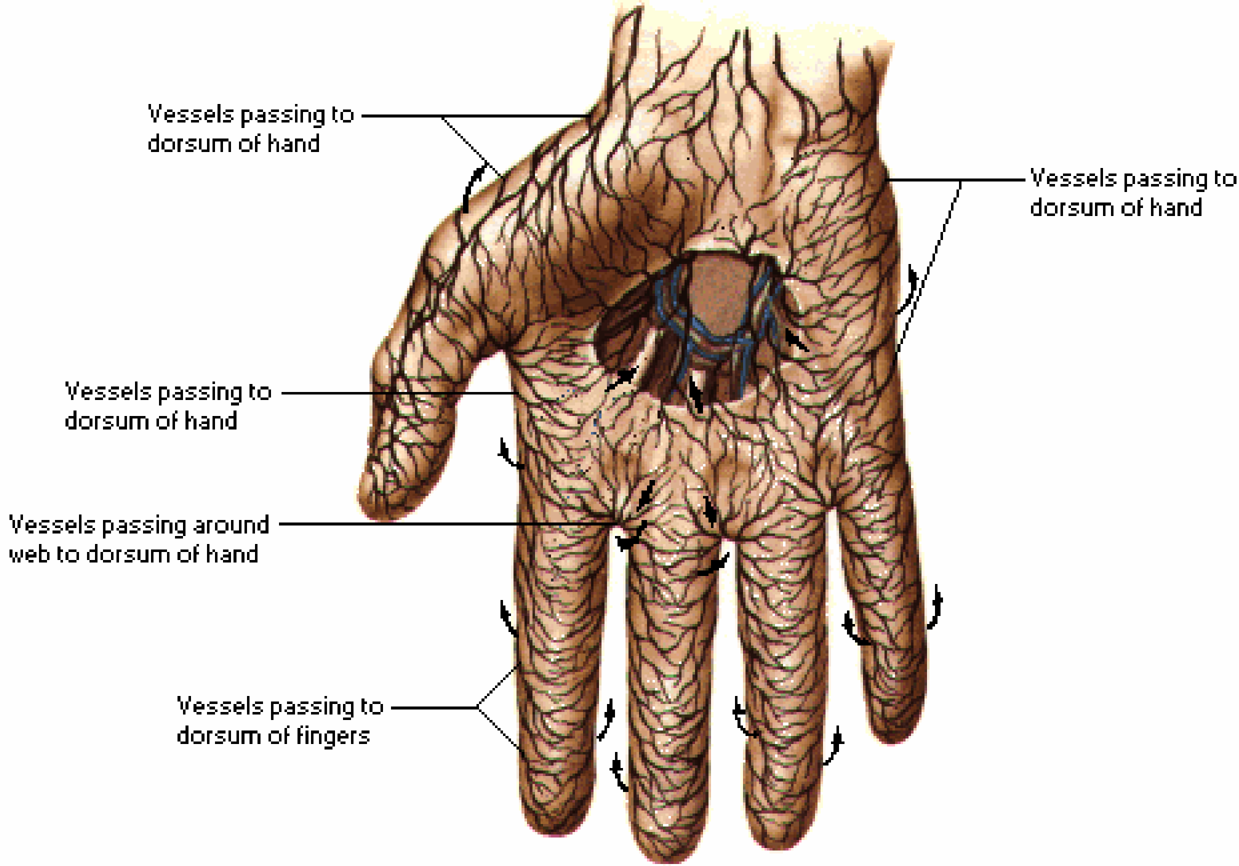
Posterior View



Note: schematic demarcation of dermatomes shown as distinct segments.
There is actually considerable overlap between adjacent dermatomes.

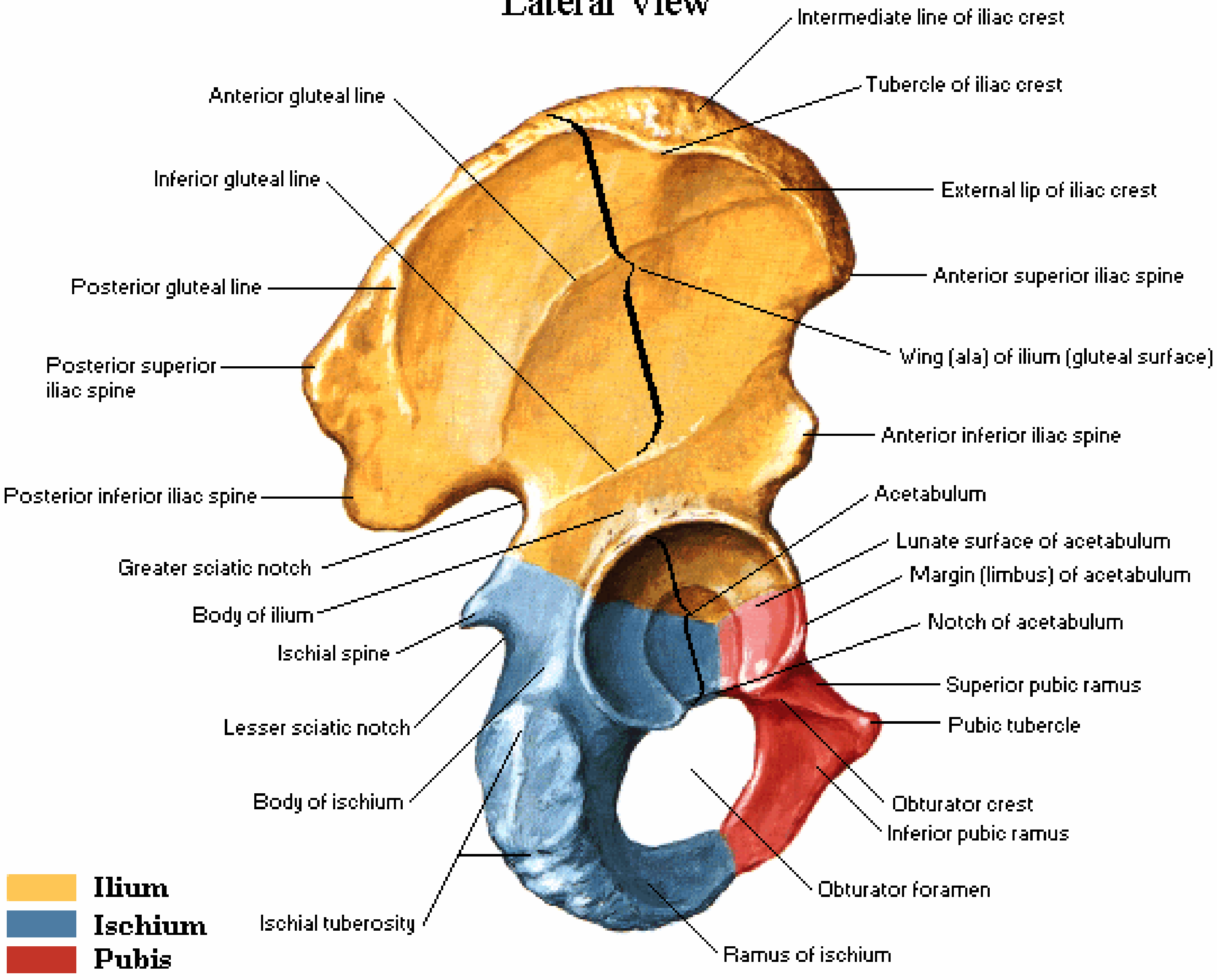


Note: Arrows indicate direction of drainage.

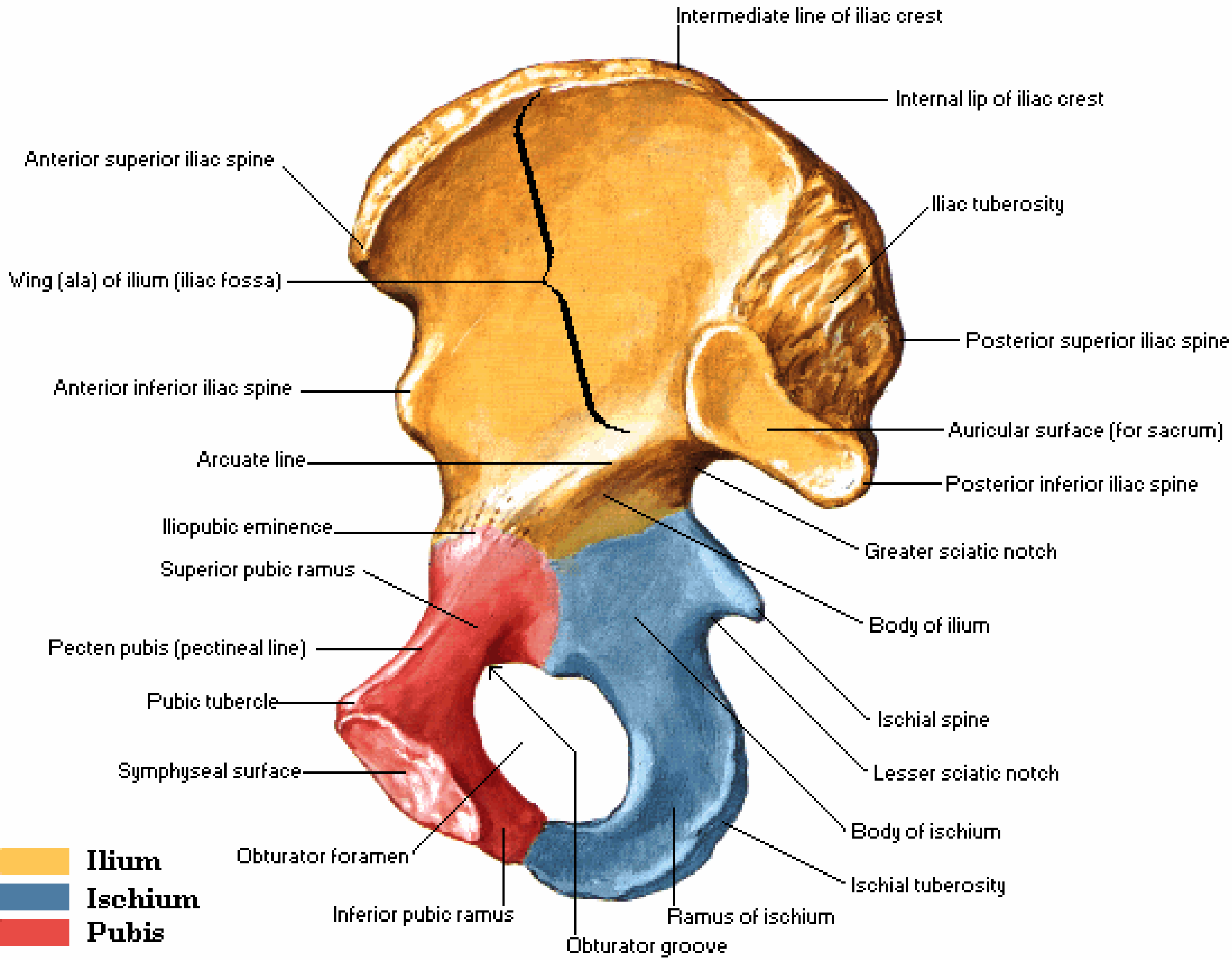


Note: Arrows indicate direction of drainage.

Lateral View

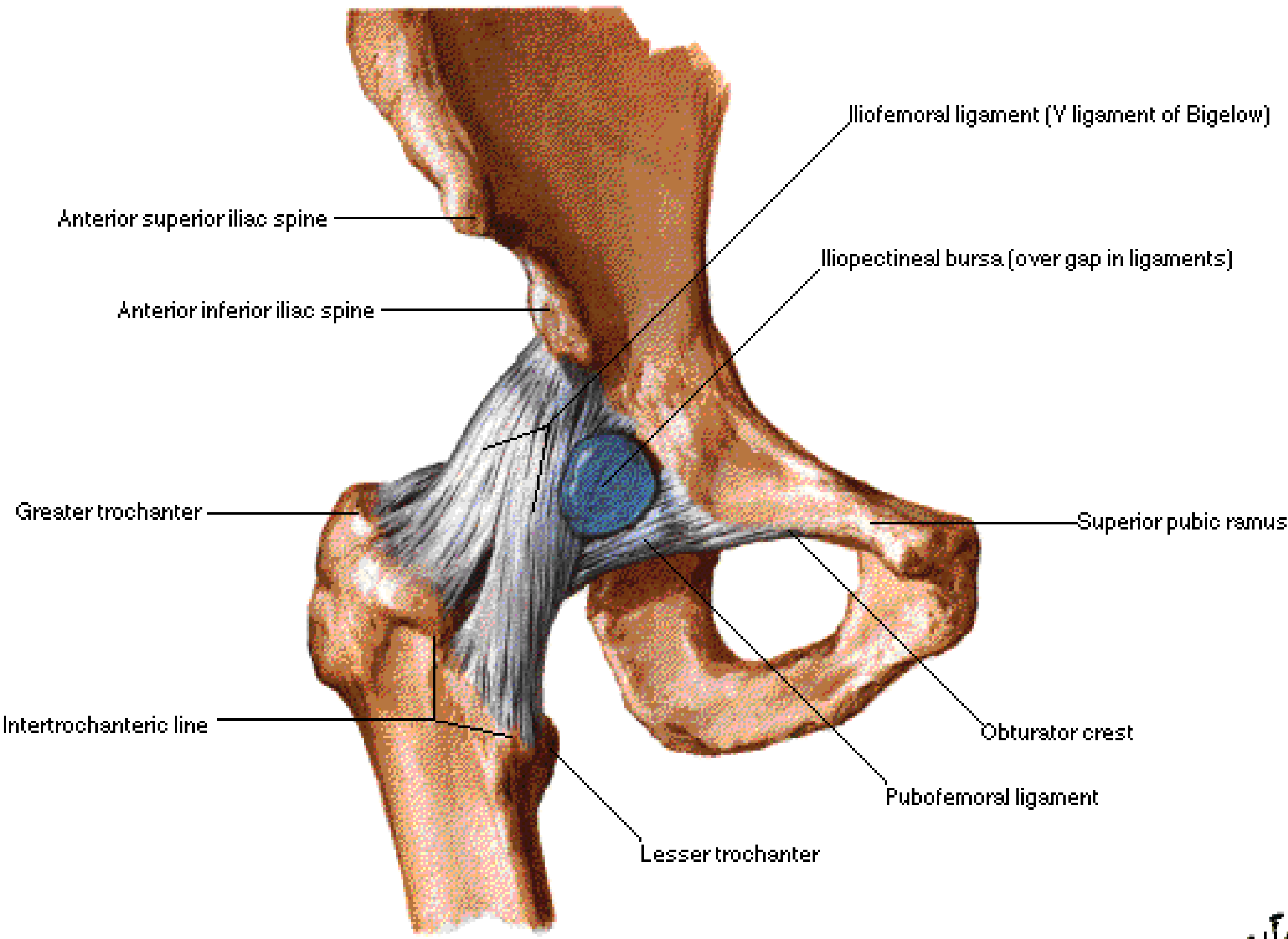


Medial View

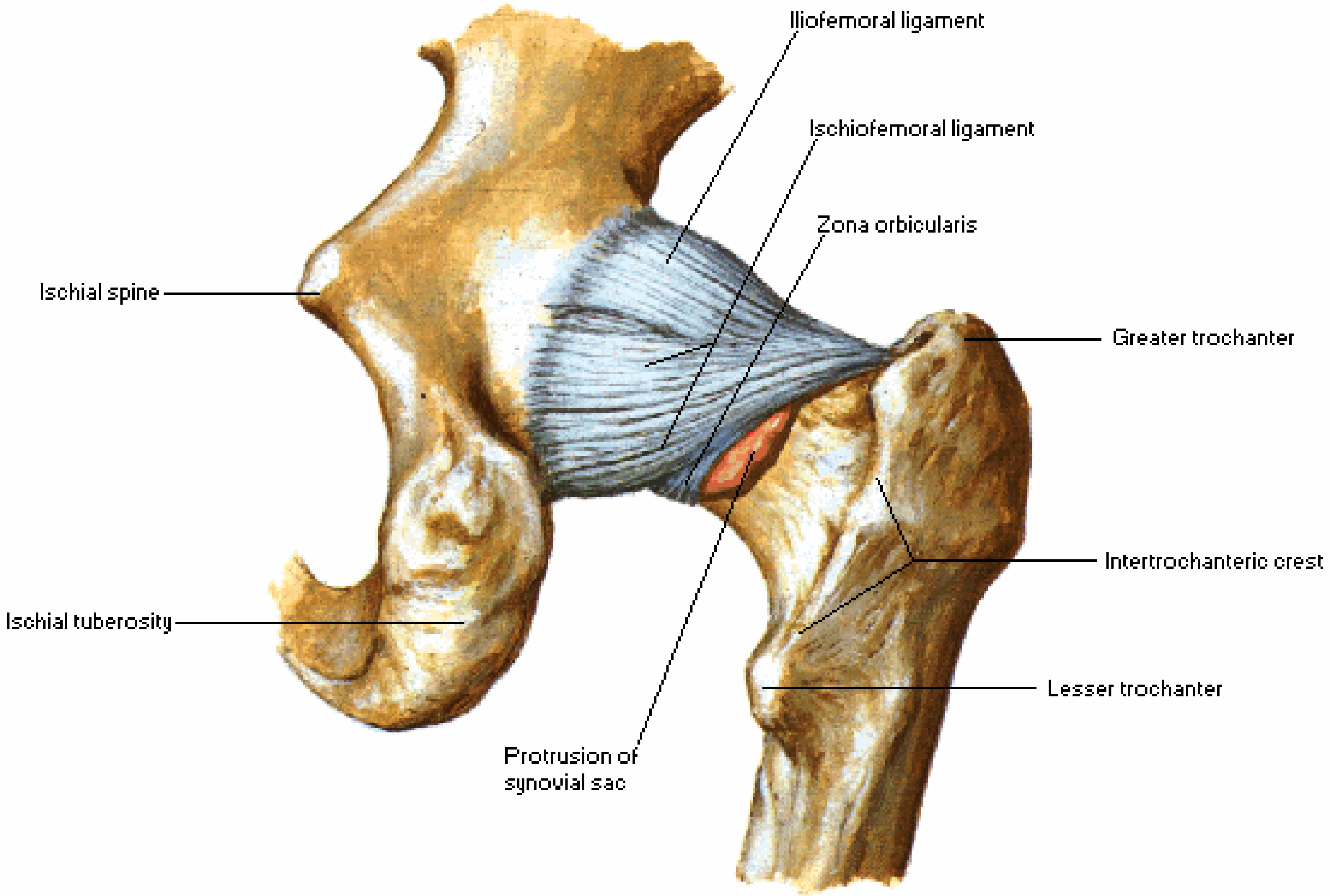


Intermediate line of iliac crest
Internal lip of iliac crest
Anterior superior iliac spine
Iliac tuberosity
Wing (ala) of ilium (iliac fossa)
Posterior superior iliac spine
Anterior inferior iliac spine
Auricular surface (for sacrum)
Arcuate line
Posterior inferior iliac spine
Iliopubic eminence
Greater sciatic notch
Superior pubic ramus
Body of ilium
Pecten pubis (pectineal line)
Pubic tubercle
Ischial spine
Symphyseal surface
Lesser sciatic notch
Body of ischium
Obturator foramen
Ischial tuberosity
Inferior pubic ramus
Ramus of ischium
Obturator groove
Ilium
Ischium
Pubis

Hip Joint
Anterior View

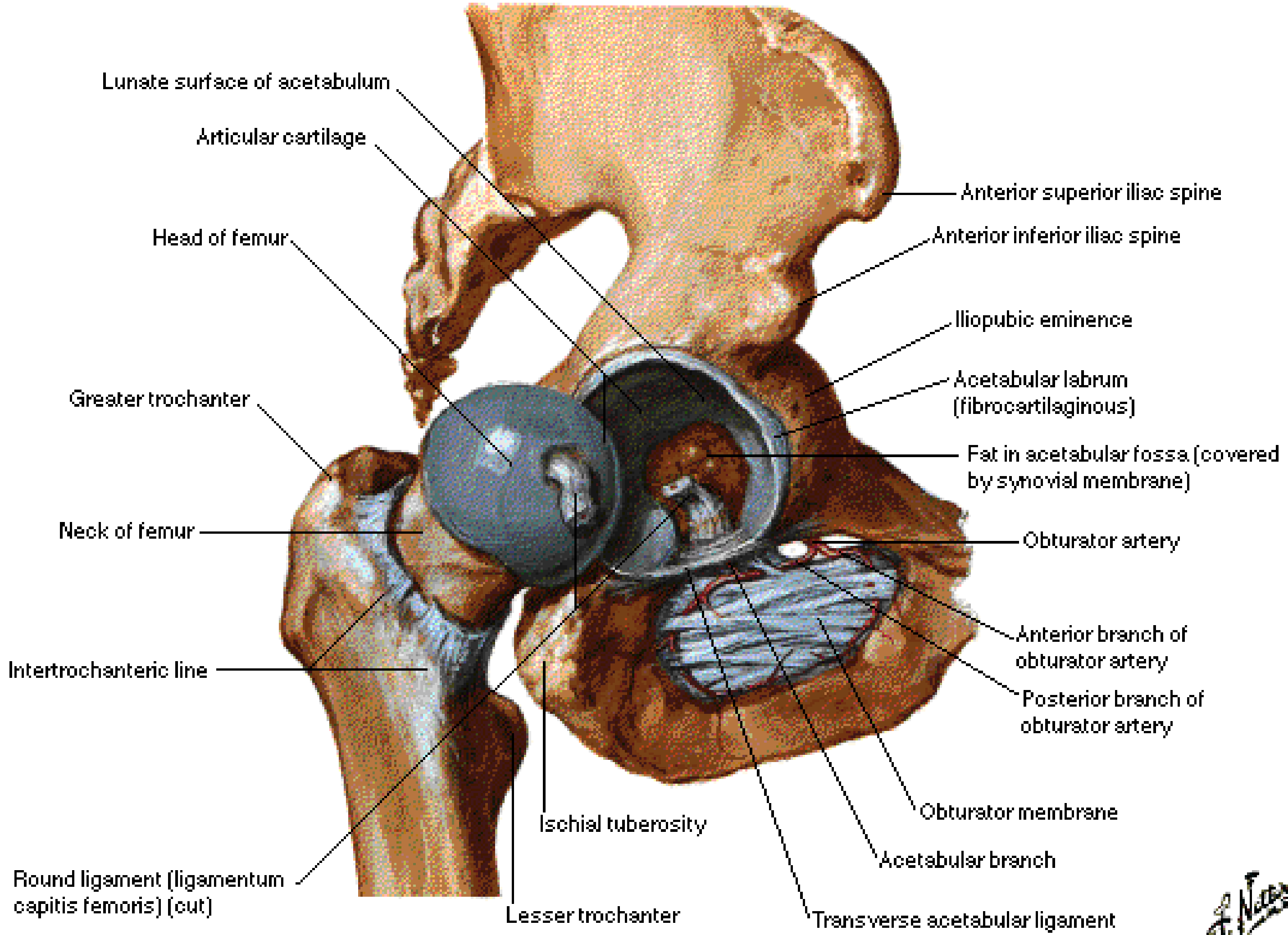


Posterior View

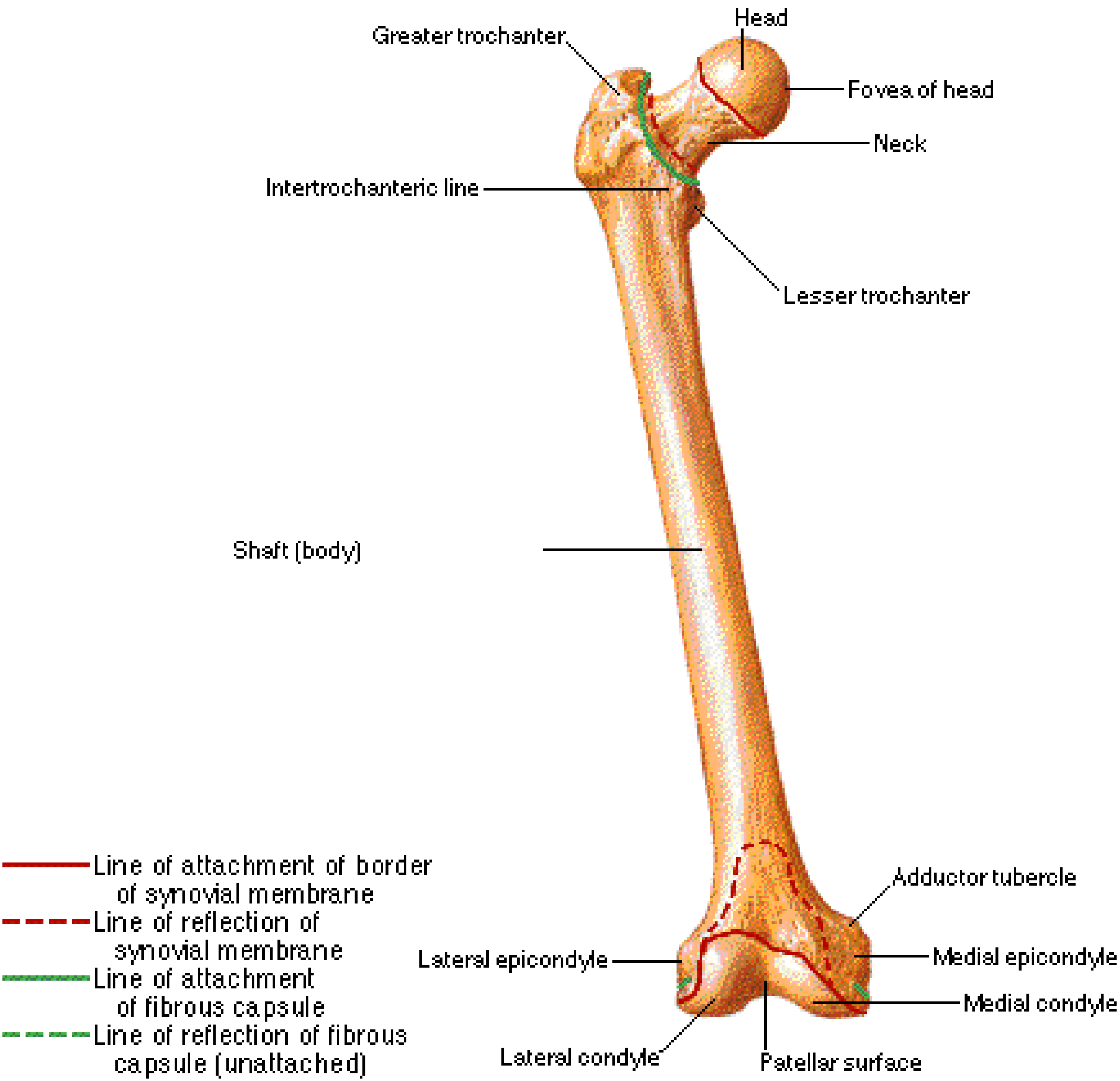


Hip Joint [Opened]

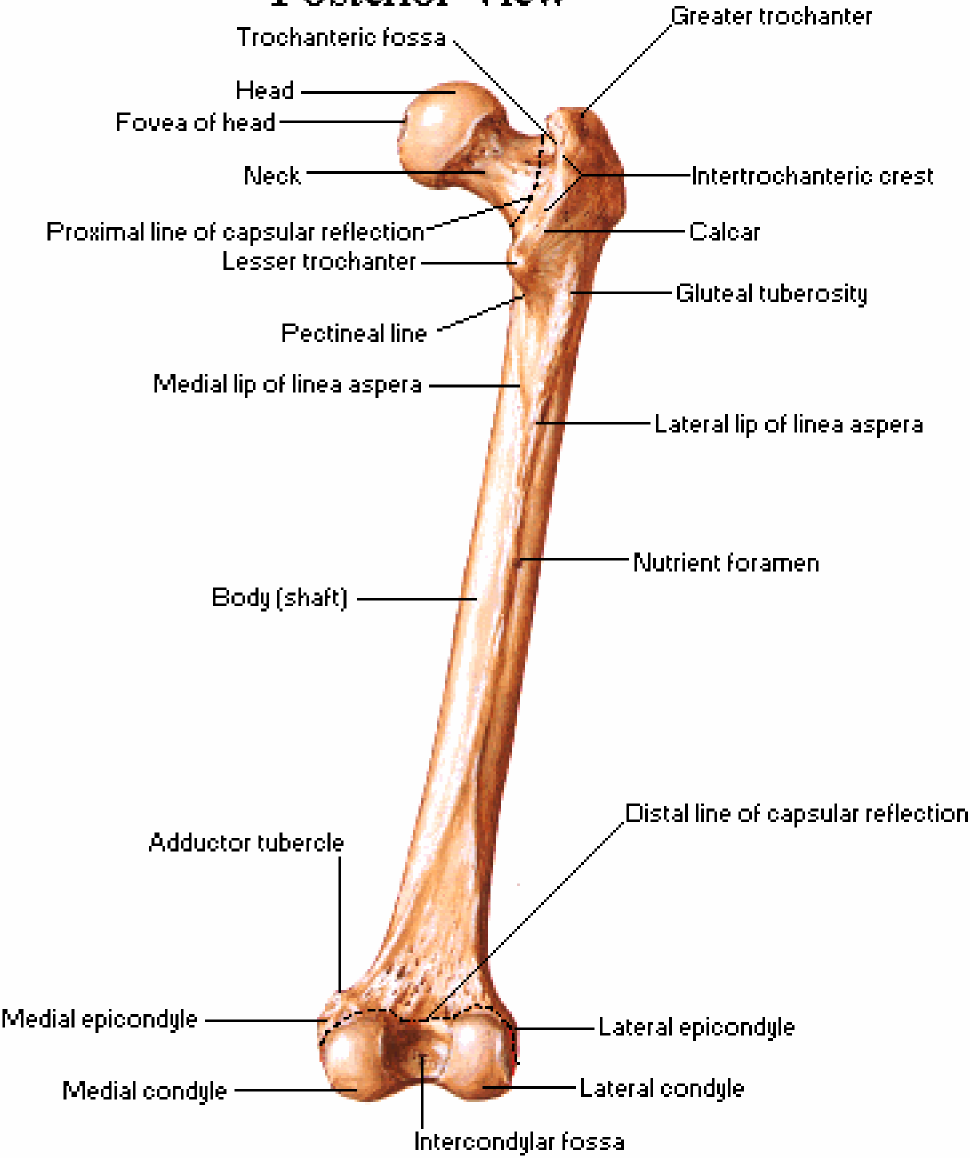
Lateral View

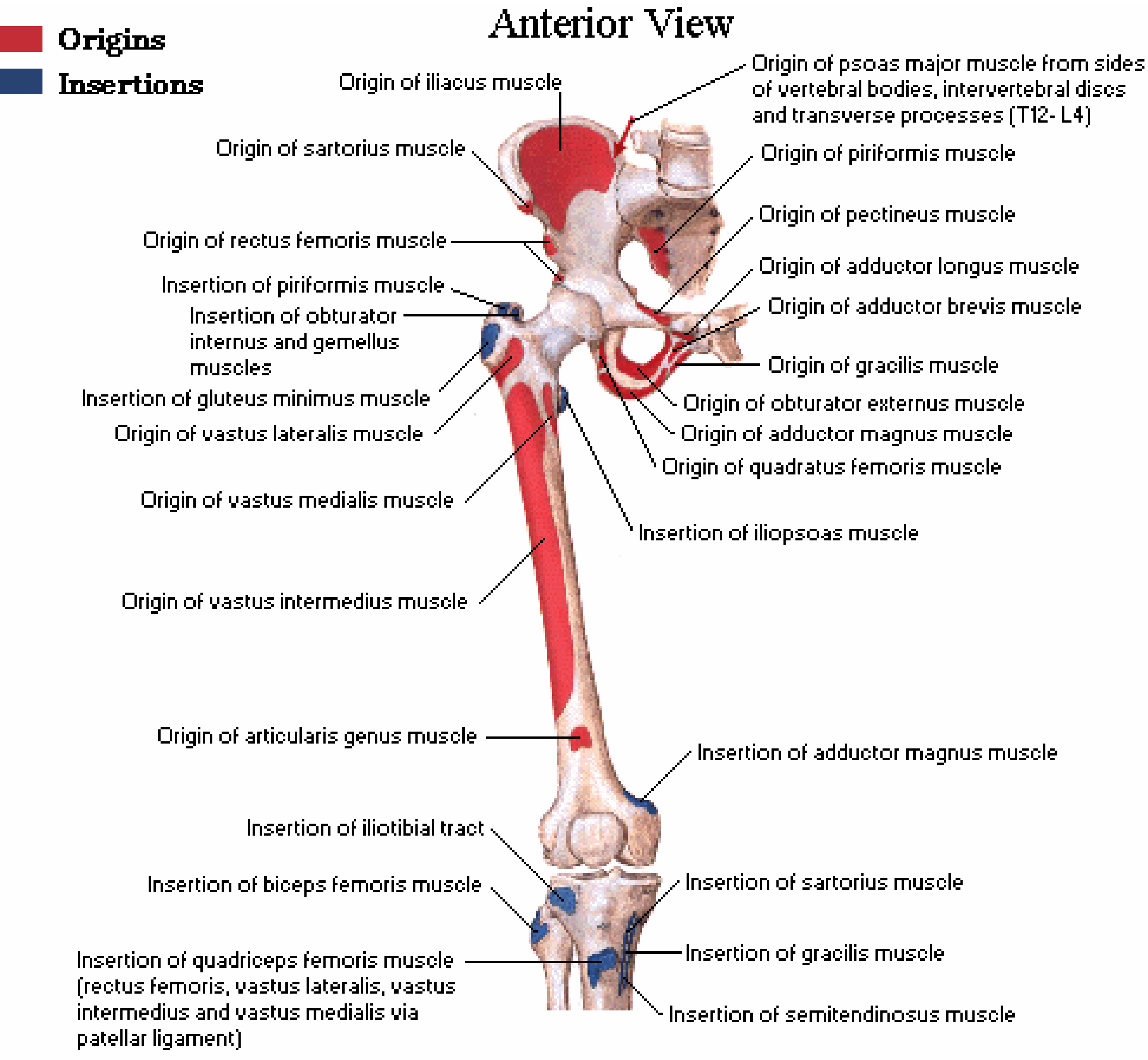


Femur
Anterior View



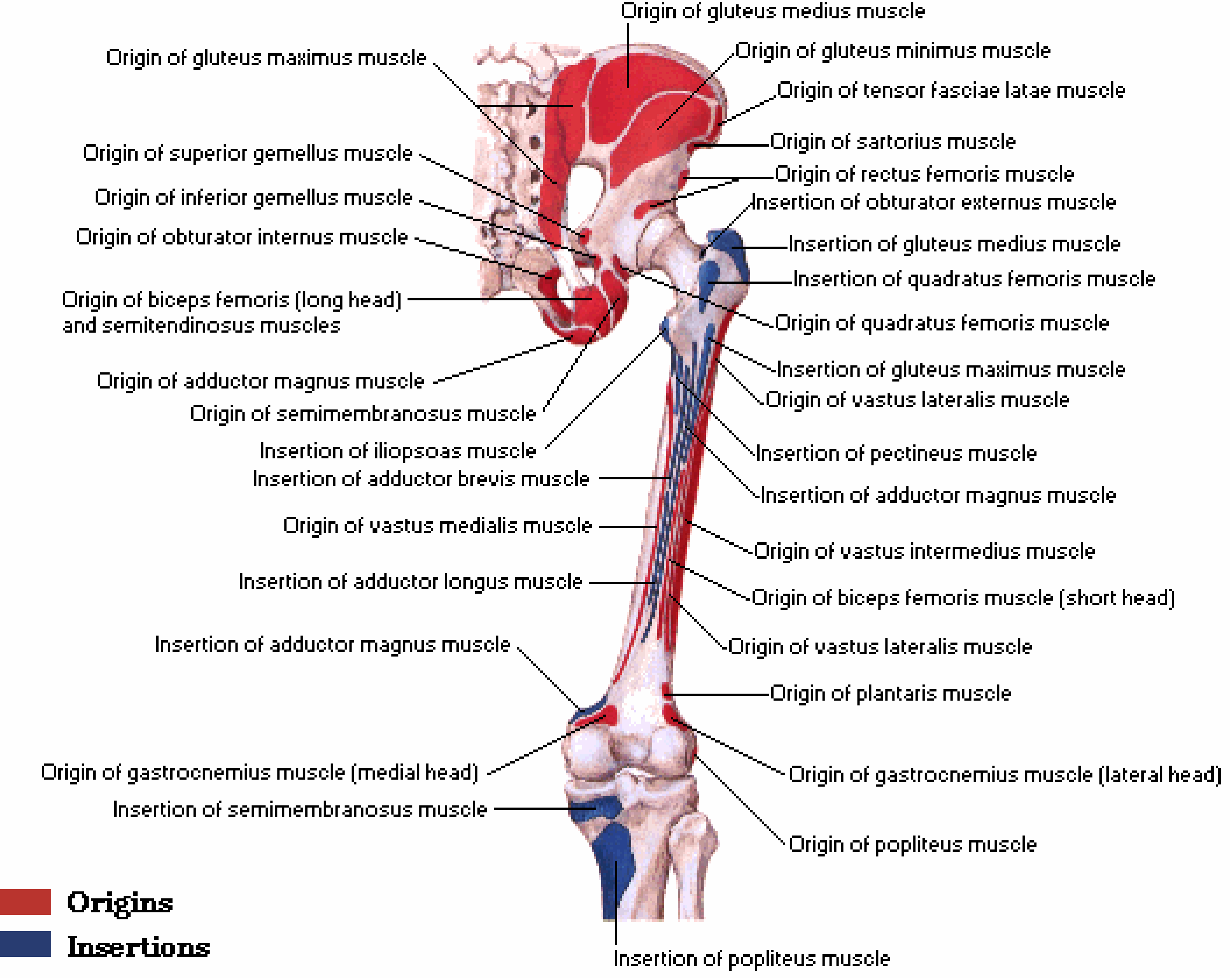
Posterior View





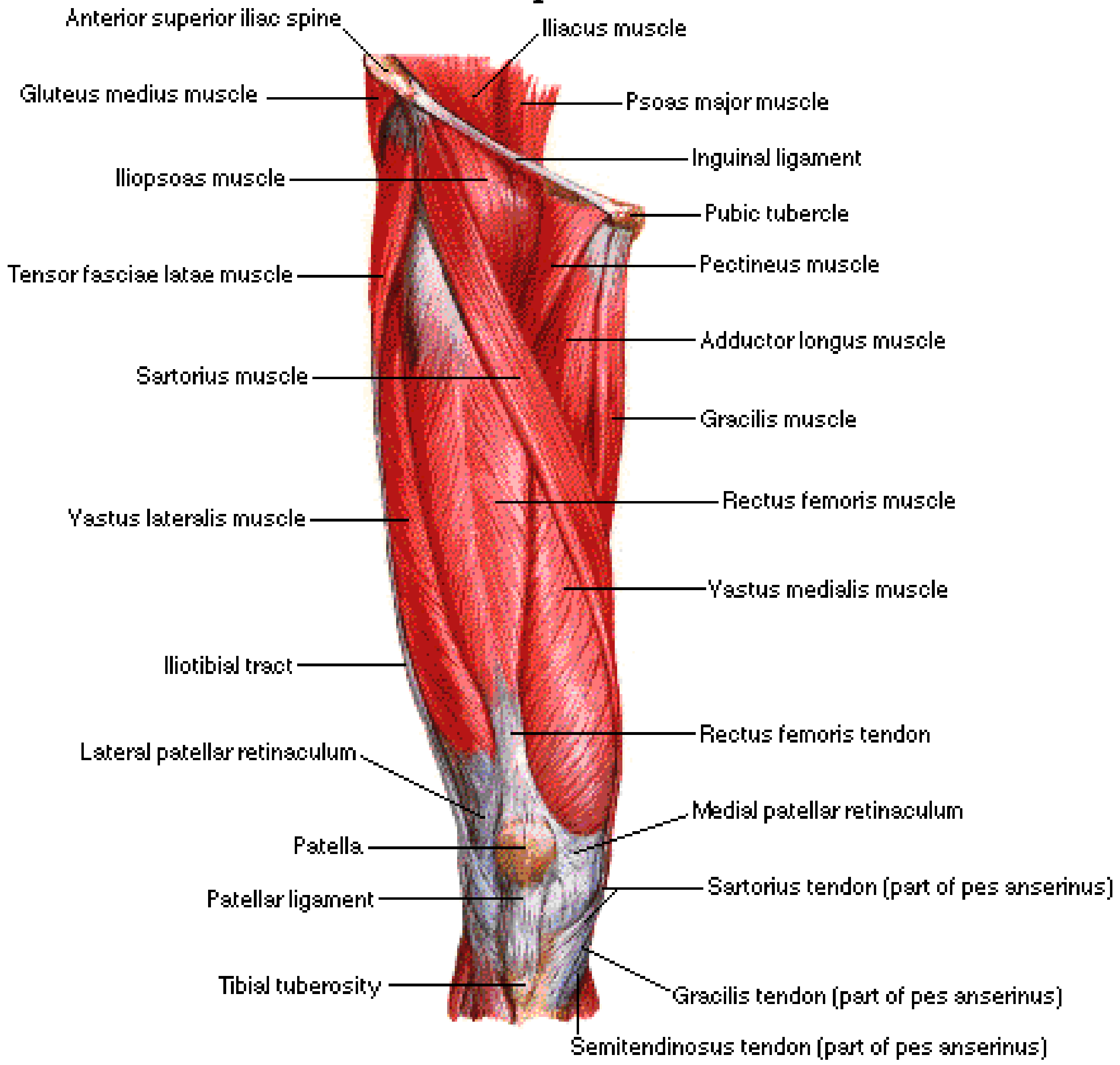
Anterior View
Origins
Insertions
Origin of iliacus muscle
Origin of psoas major muscle from sides of vertebral bodies, intervertebral discs and transverse processes (T12- L4)
Origin of sartorius muscle
Origin of piriformis muscle
Origin of pectineus muscle
Origin of rectus femoris muscle
Origin of adductor longus muscle
Insertion of piriformis muscle
Origin of adductor brevis muscle
Insertion of obturator internus and gemellus muscles
Origin of gracilis muscle
Insertion of gluteus minimus muscle
Origin of obturator externus muscle
Origin of vastus lateralis muscle
Origin of adductor magnus muscle
Origin of quadratus femoris muscle
Origin of vastus medialis muscle
Insertion of iliopsoas muscle
Origin of vastus intermedius muscle
Origin of articularis genus muscle
Insertion of adductor magnus muscle
Insertion of iliotibial tract
Insertion of biceps femoris muscle
Insertion of sartorius muscle
Insertion of gracilis muscle
Insertion of quadriceps femoris muscle (rectus femoris, vastus lateralis, vastus intermedius and vastus medialis via patellar ligament)
Insertion of semitendinosus muscle

Posterior View



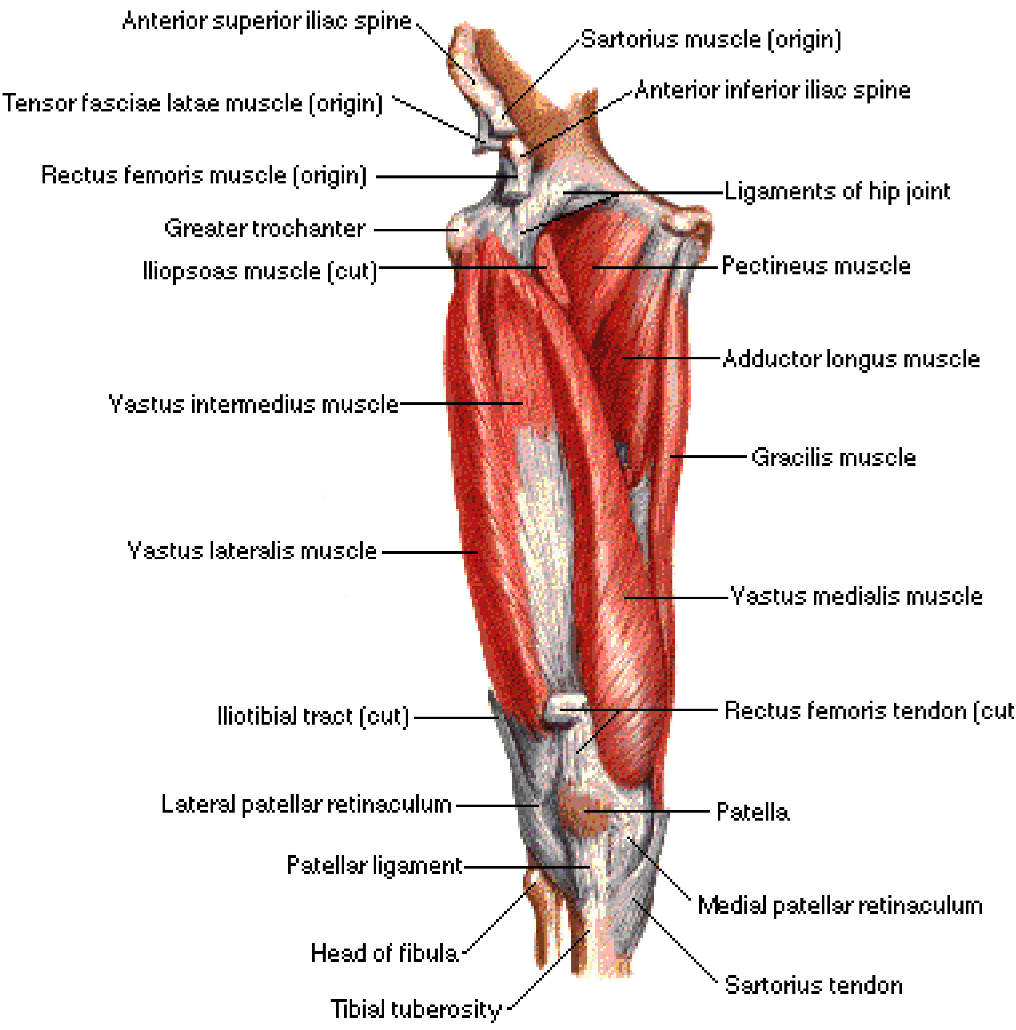
Muscles of Thigh

Anterior View - Superficial Dissection

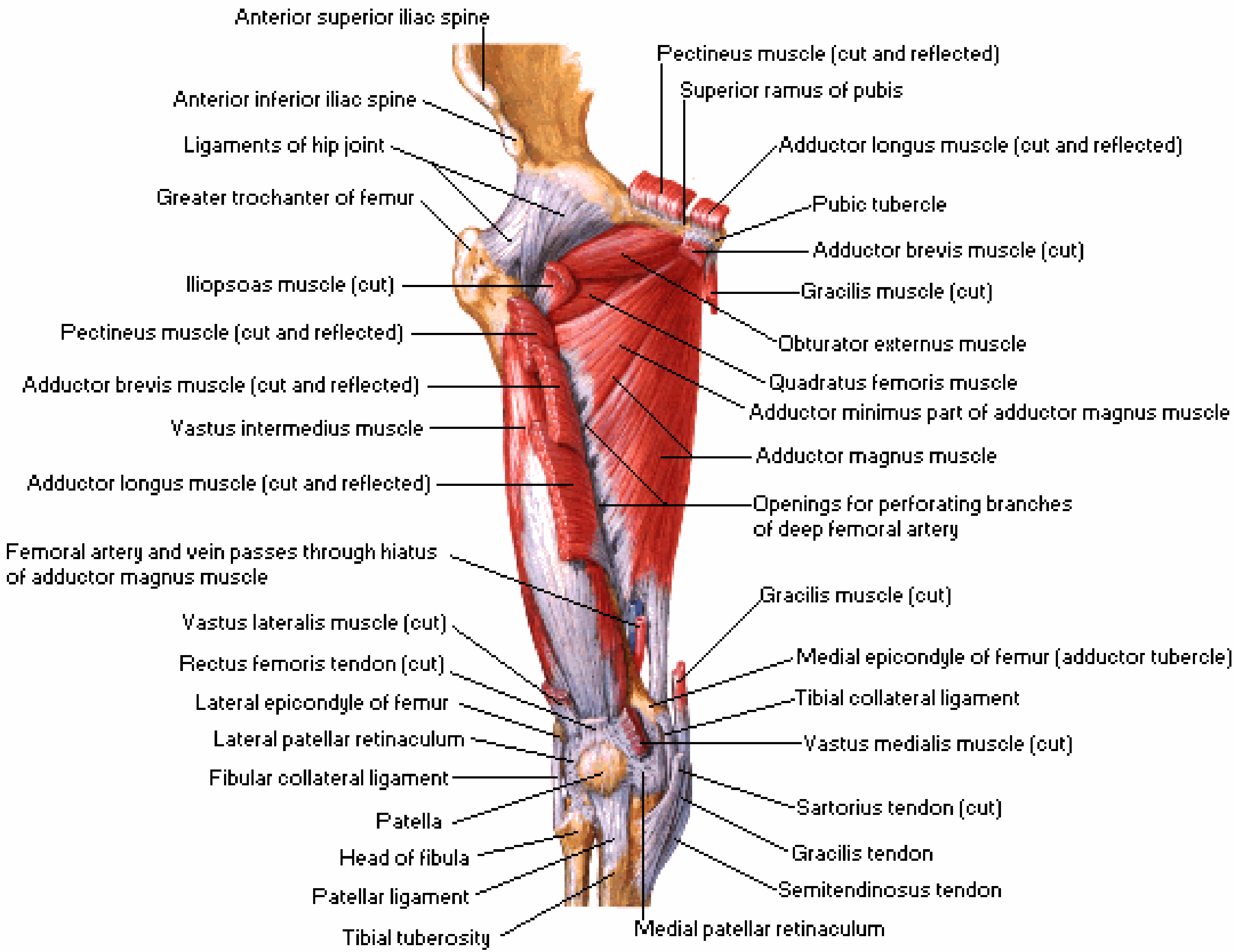


Muscles of Thigh

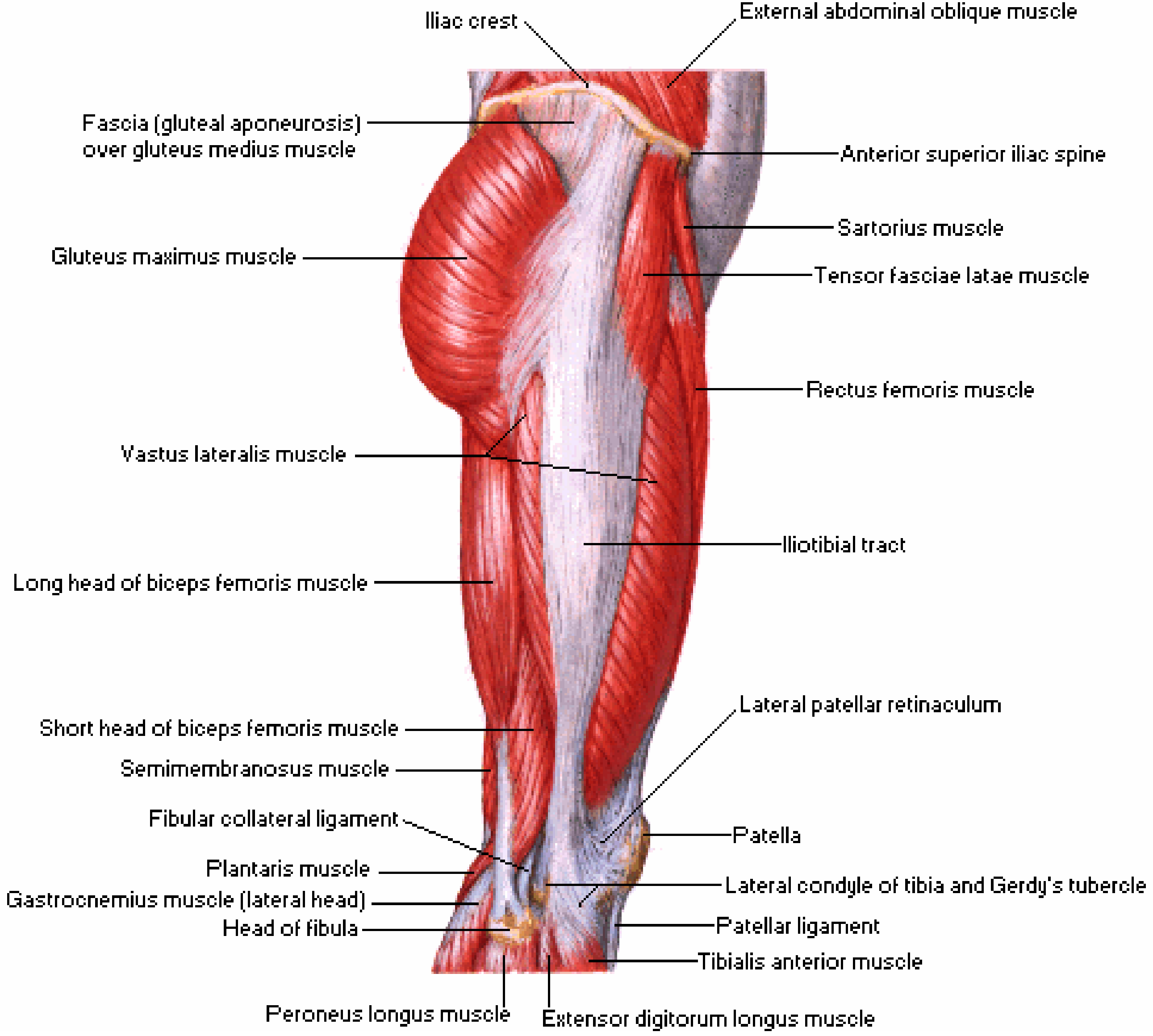
Anterior View - Deeper Dissection



Anterior View - Deepest Dissection

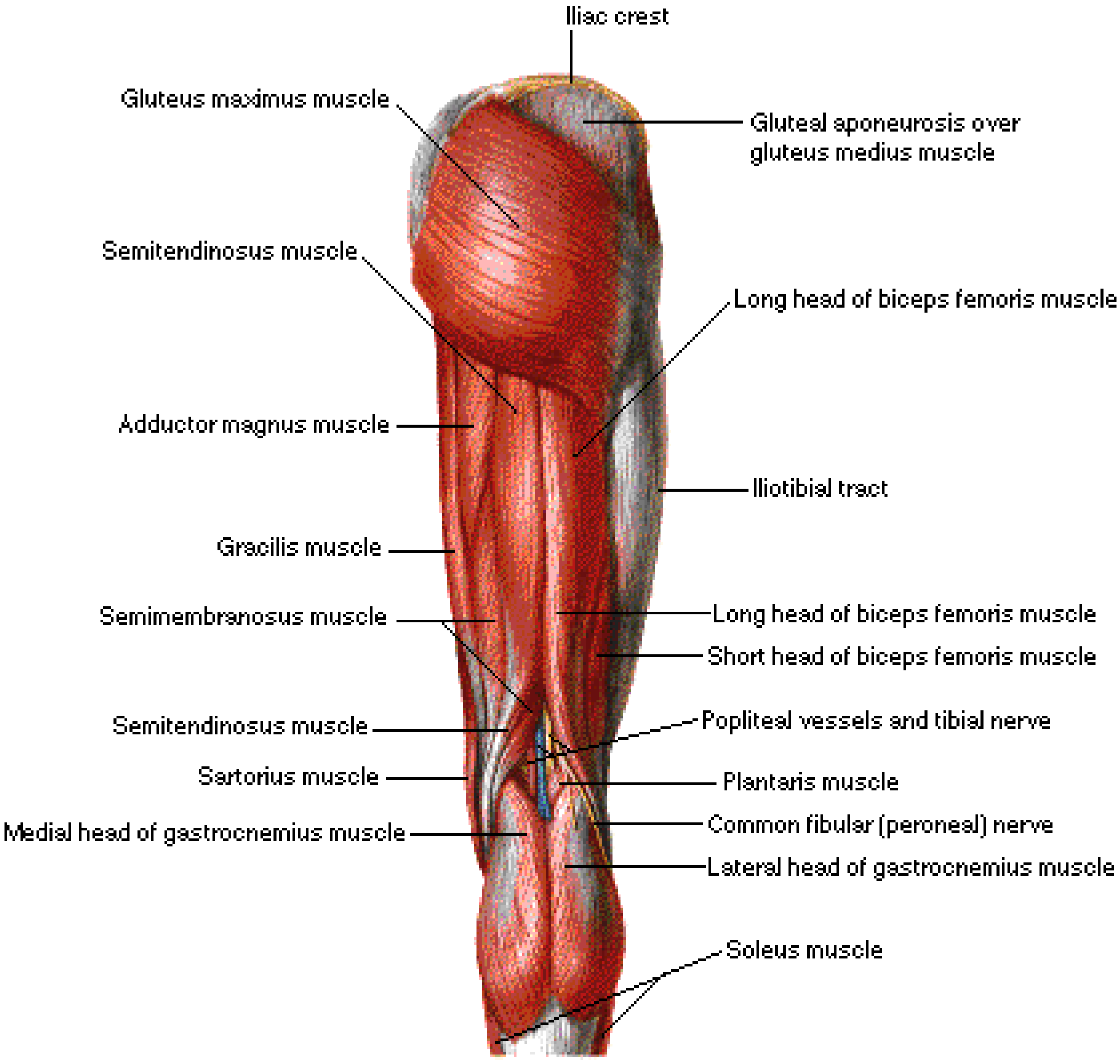


Lateral View



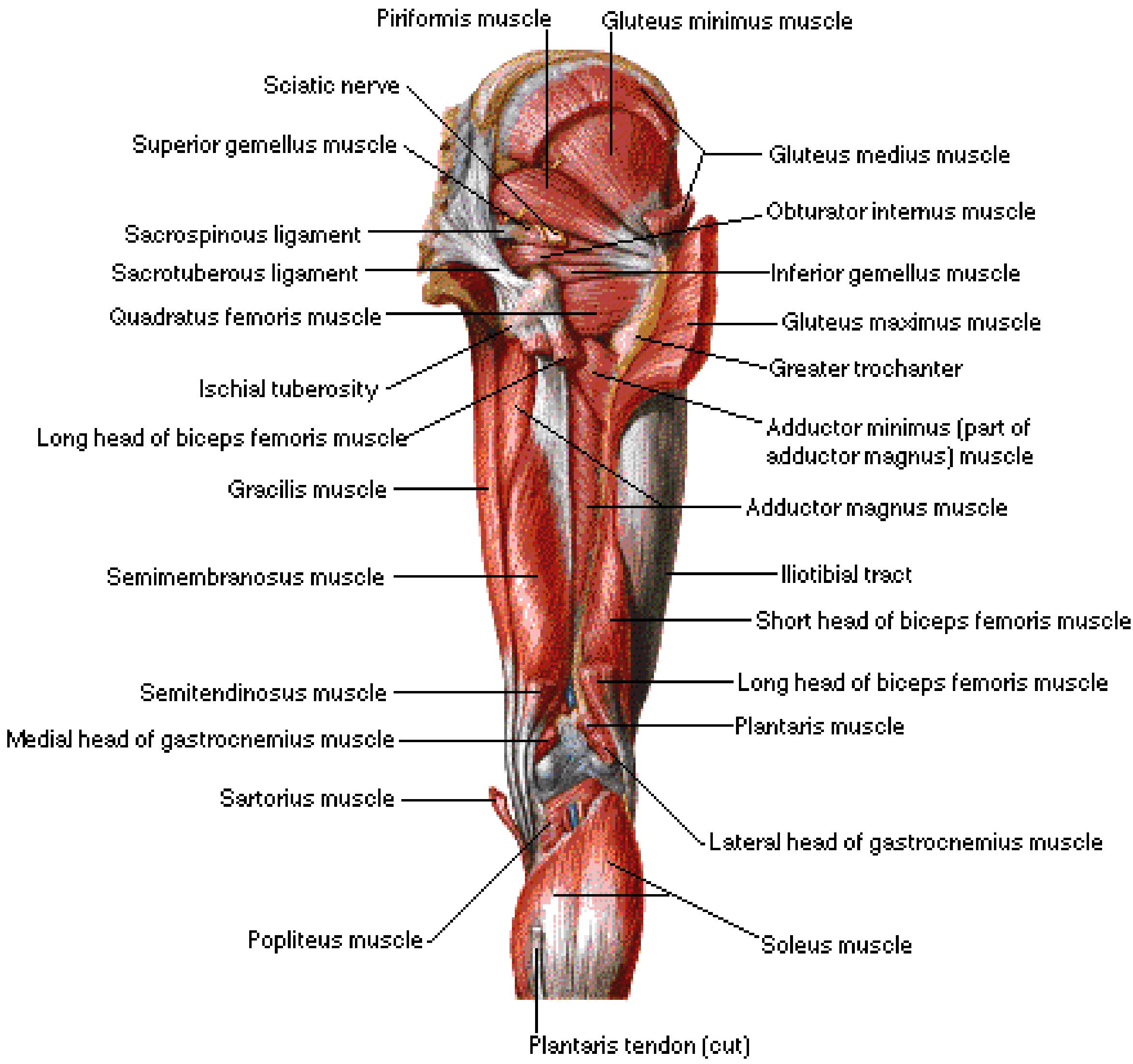
Muscles of Hip and Thigh

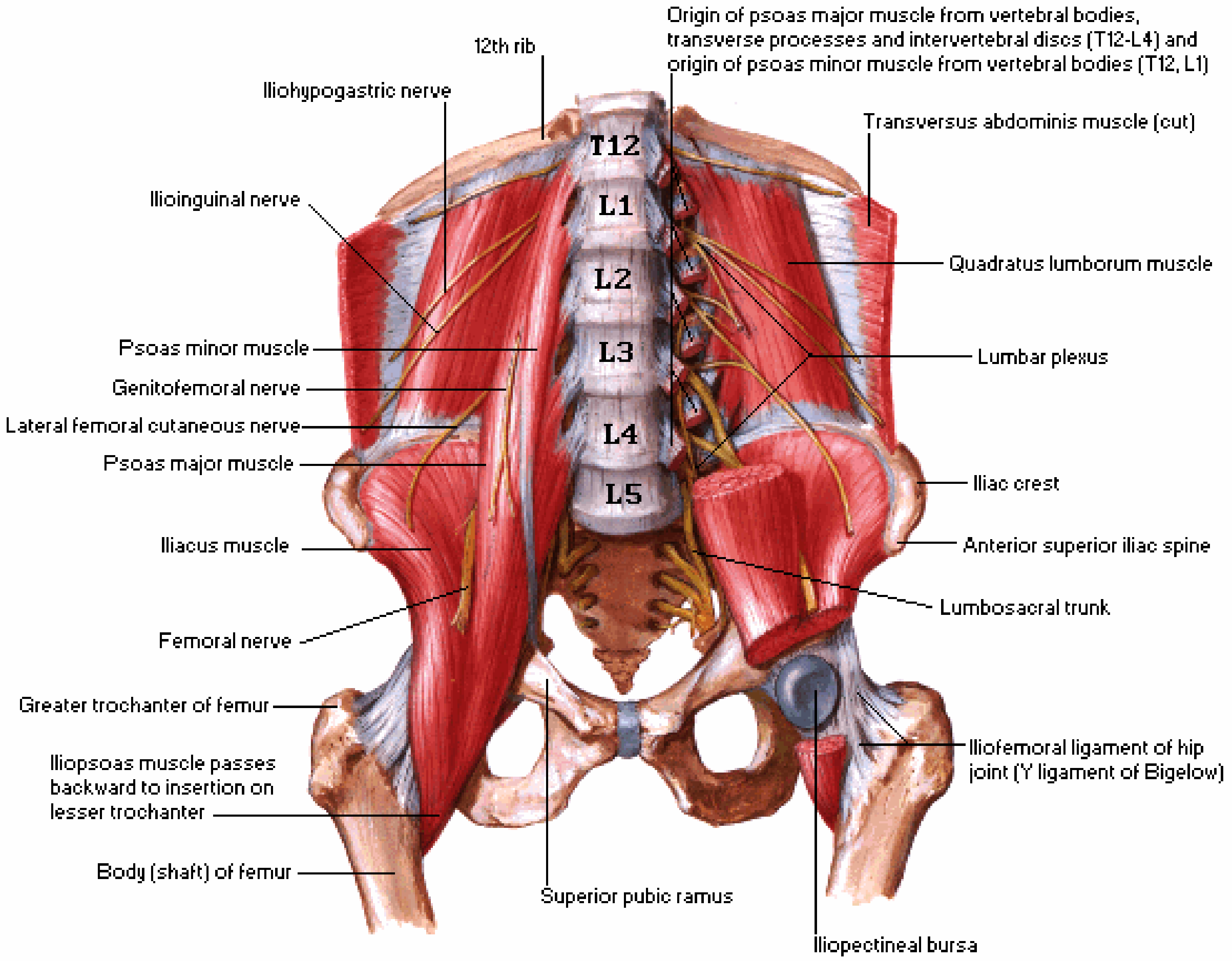
Posterior View - Superficial Dissection



Muscles of Hip and Thigh

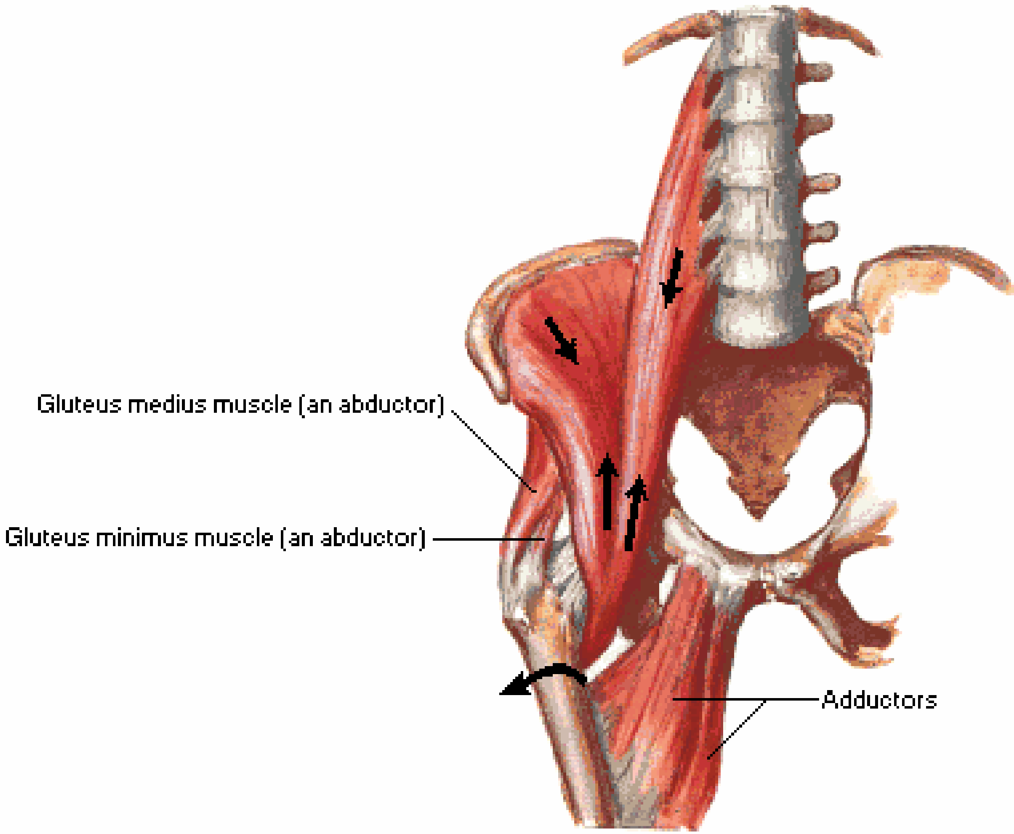
Posterior View - Deeper Dissection



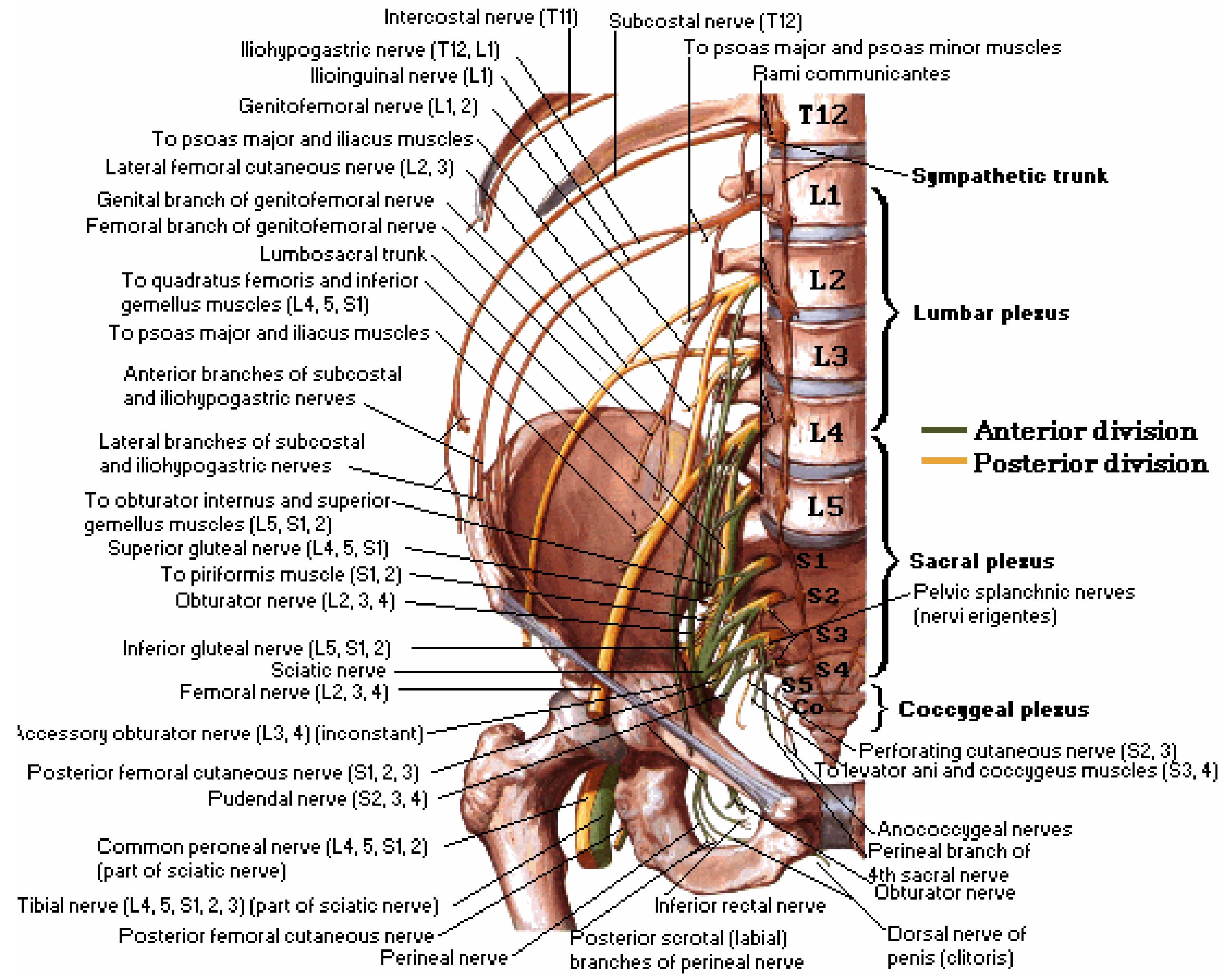


Origin of psoas major muscle from vertebral bodies, transverse processes and intervertebral discs (T12-L4) and origin of psoas minor muscle from vertebral bodies (T12, L1)
12th rib
Iliohypogastric nerve
Transversus abdominis muscle (cut)
T12
L1
L2
L3
L4
L5
Ilioinguinal nerve
Quadratus lumborum muscle
Psoas minor muscle
Lumbar plexus
Genitofemoral nerve
Lateral femoral cutaneous nerve
Psoas major muscle
Iliac crest
Iliacus muscle
Anterior superior iliac spine
Lumbosacral trunk
Femoral nerve
Greater trochanter of femur
Iliofemoral ligament of hip joint (Y ligament of Bigelow)
Iliopsoas muscle passes backward to insertion on lesser trochanter
Body (shaft) of femur
Superior pubic ramus
Iliopectineal bursa

Action

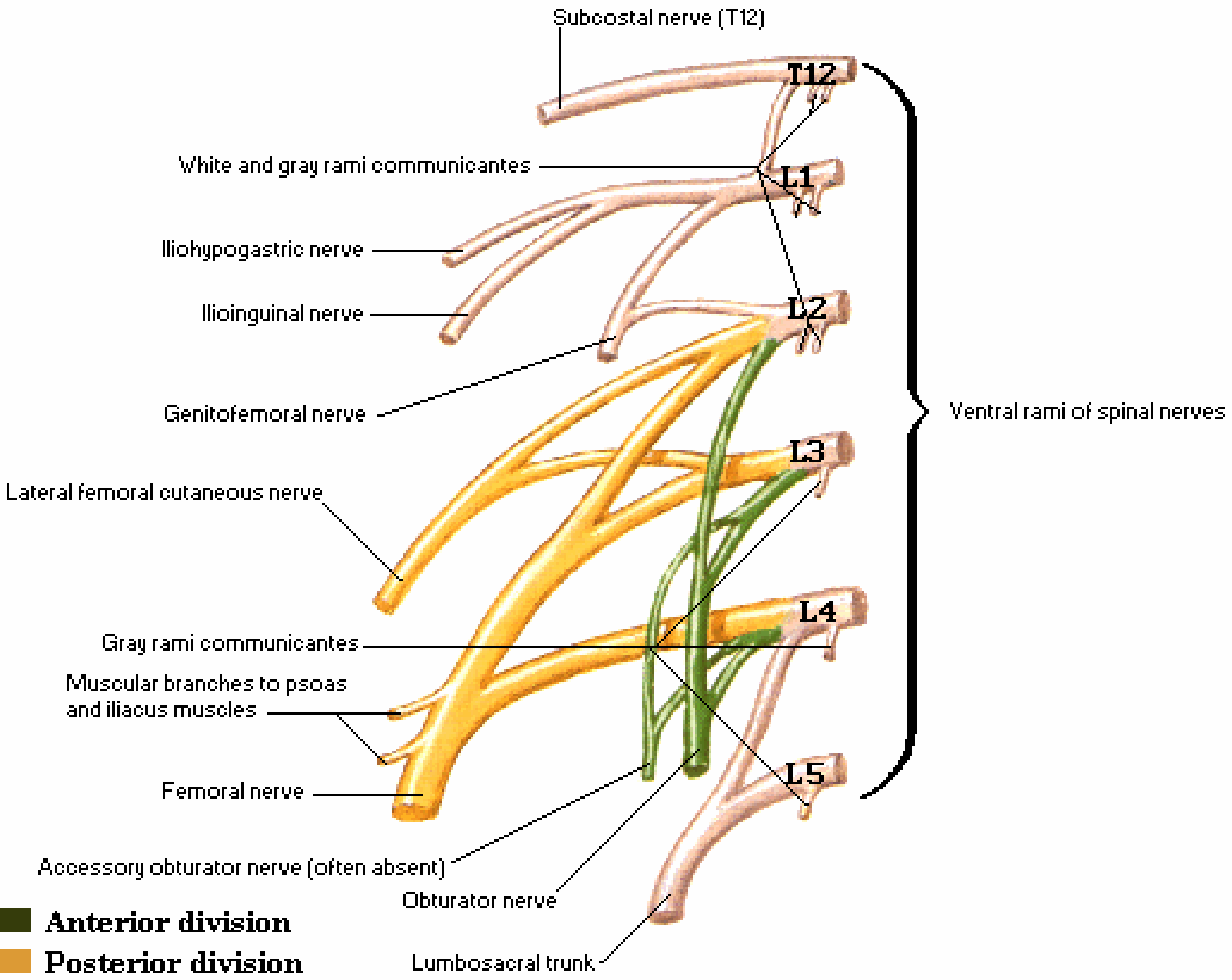


Note: arrows indicate direction of action of iliopsoas muscle

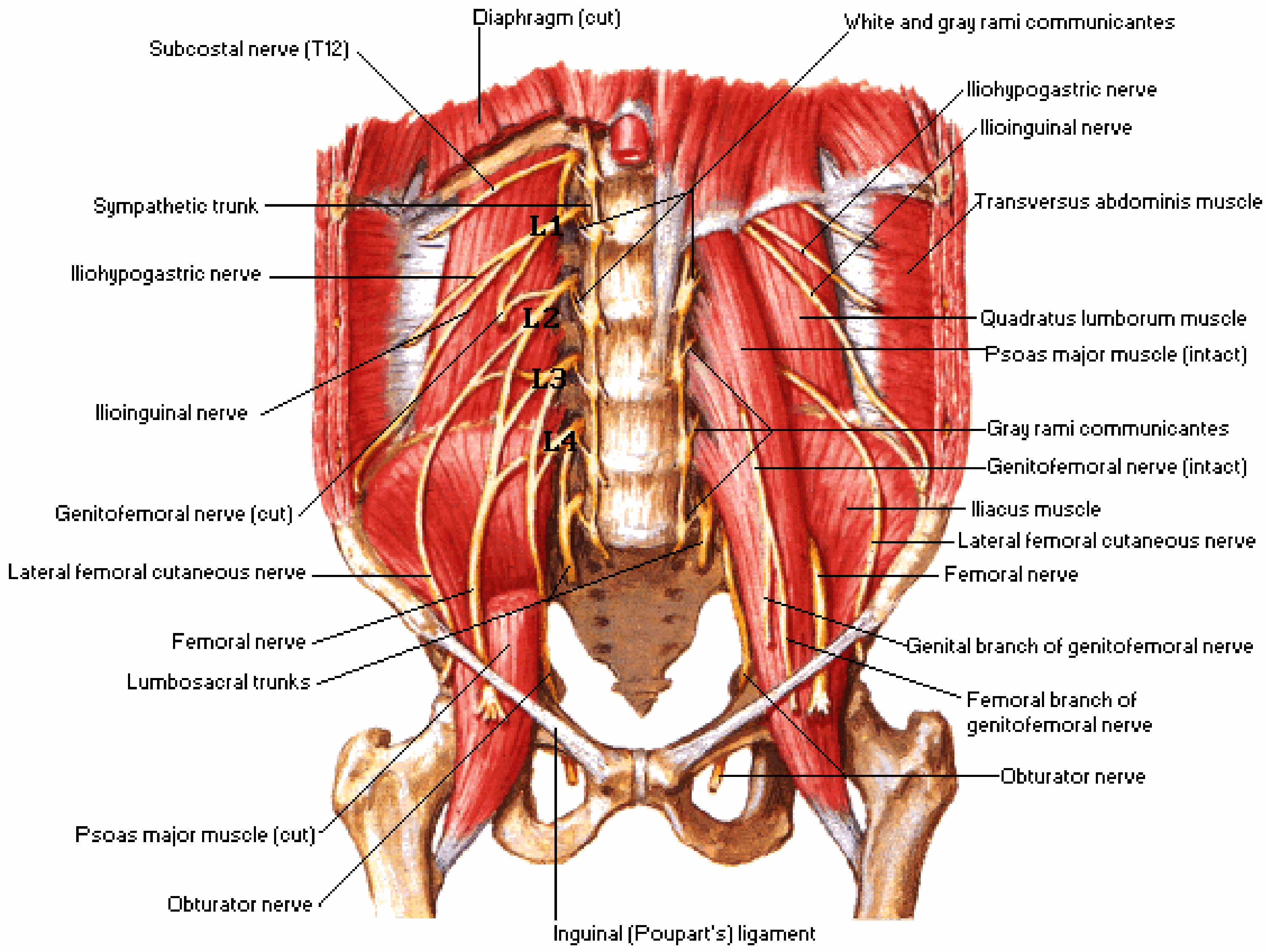


Intercostal nerve (T11)
Subcostal nerve (T12)
Iliohypogastric nerve (T12, L1)
To psoas major and psoas minor muscles
Ilioinguinal nerve (L1)
Rami communicantes
Genitofemoral nerve (L1, 2)
T12
To psoas major and iliacus muscles
Lateral femoral cutaneous nerve (L2, 3)
Sympathetic trunk
Genital branch of genitofemoral nerve
L1
Femoral branch of genitofemoral nerve
Lumbosacral trunk
L2
To quadratus femoris and inferior
gemellus muscles (L4, 5, S1)
Lumbar plexus
To psoas major and iliacus muscles
L3
Anterior branches of subcostal
and iliohypogastric nerves
L4
Anterior division
Lateral branches of subcostal
and iliohypogastric nerves
Posterior division
To obturator internus and superior
gemellus muscles (L5, S1, 2)
L5
Superior gluteal nerve (L4, 5, S1)
S1
Sacral plexus
To piriformis muscle (S1, 2)
S2
Pelvic splanchnic nerves
(nervi erigentes)
Obturator nerve (L2, 3, 4)
S3
Inferior gluteal nerve (L5, S1, 2)
S4
Sciatic nerve
S5
Femoral nerve (L2, 3, 4)
Co
Coccygeal plexus
Accessory obturator nerve (L3, 4) (inconstant)
Perforating cutaneous nerve (S2, 3)
Posterior femoral cutaneous nerve (S1, 2, 3)
To levator ani and coccygeus muscles (S3, 4)
Pudendal nerve (S2, 3, 4)
Anococcygeal nerves
Common peroneal nerve (L4, 5, S1, 2)
(part of sciatic nerve)
Perineal branch of
4th sacral nerve
Obturator nerve
Tibial nerve (L4, 5, S1, 2, 3) (part of sciatic nerve)
Inferior rectal nerve
Posterior femoral cutaneous nerve
Dorsal nerve of
penis (clitoris)
Perineal nerve
Posterior scrotal (labial)
branches of perineal nerve

Schema

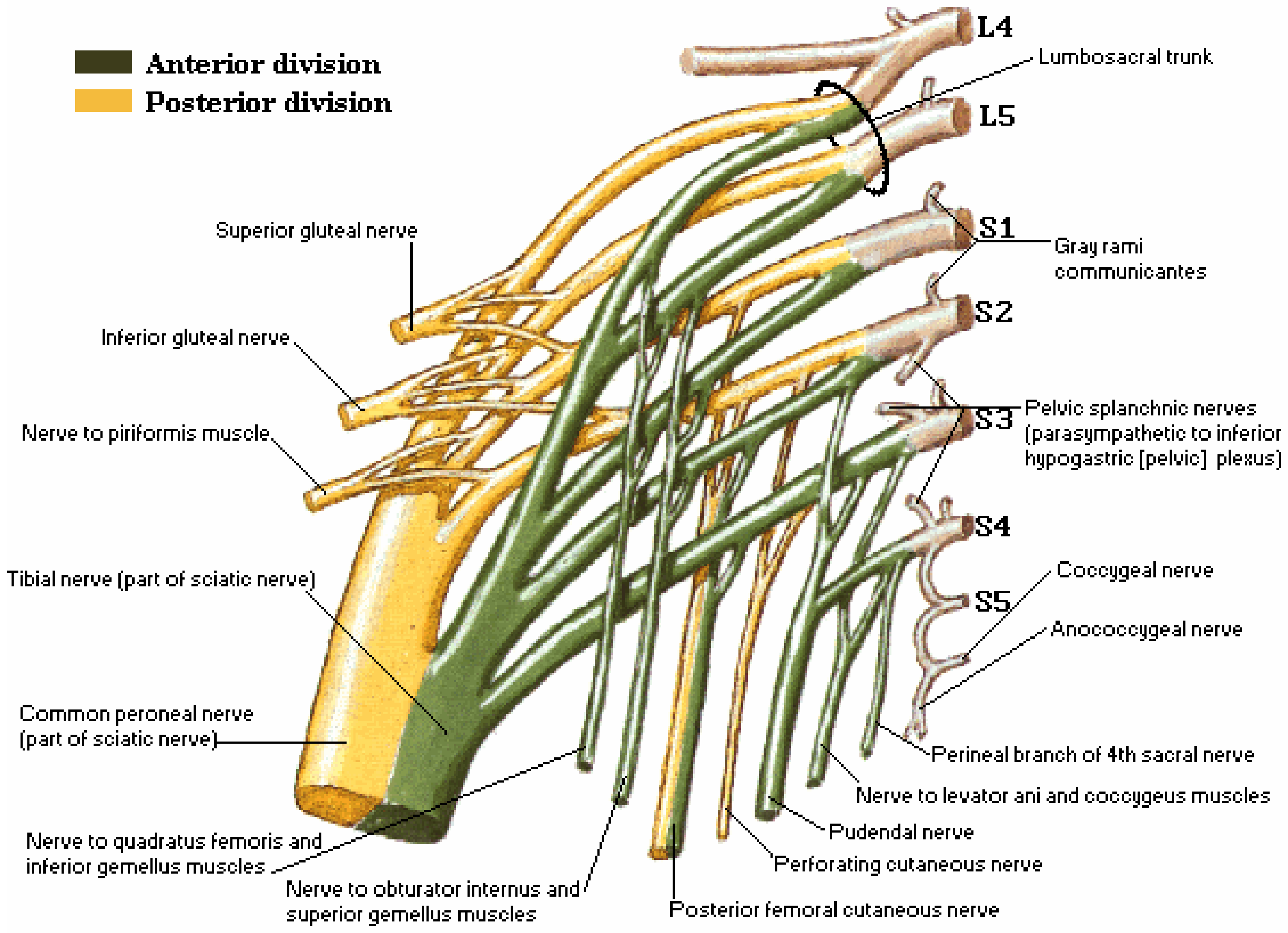


Subcostal nerve (T12)
T12
White and gray rami communicantes
L1
Iliohypogastric nerve
Ilioinguinal nerve
L2
Genitofemoral nerve
Ventral rami of spinal nerves
L3
Lateral femoral cutaneous nerve
L4
Gray rami communicantes
Muscular branches to psoas
and iliacus muscles
L5
Femoral nerve
Accessory obturator nerve (often absent)
Obturator nerve
Lumbosacral trunk
Anterior division
Posterior division

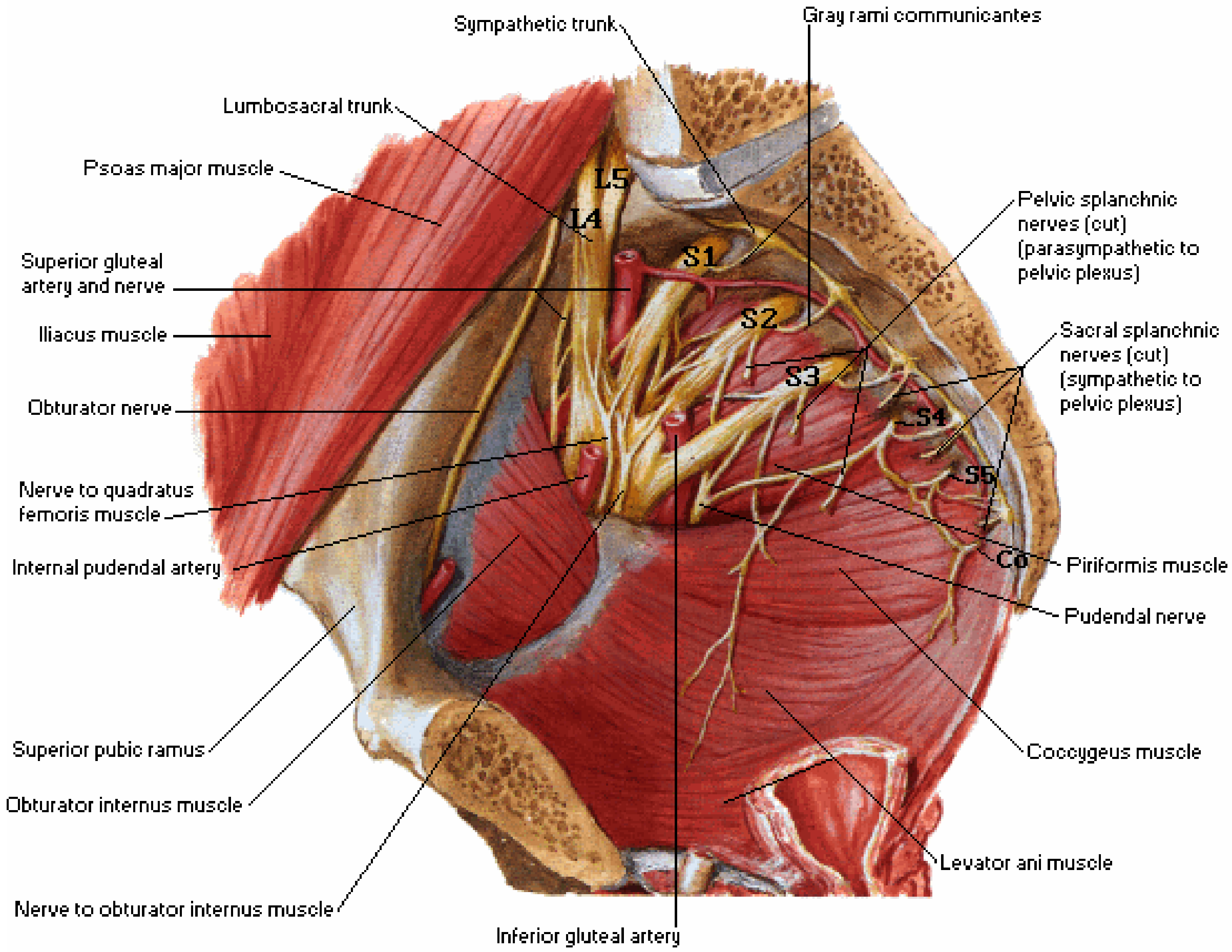


Diaphragm (cut)
White and gray rami communicantes
Subcostal nerve (T12)
Iliohypogastric nerve
Ilioinguinal nerve
Sympathetic trunk
L1
Transversus abdominis muscle
Iliohypogastric nerve
L2
Quadratus lumborum muscle
Psoas major muscle (intact)
L3
Ilioinguinal nerve
L4
Gray rami communicantes
Genitofemoral nerve (intact)
Genitofemoral nerve (cut)
Iliacus muscle
Lateral femoral cutaneous nerve
Lateral femoral cutaneous nerve
Femoral nerve
Femoral nerve
Genital branch of genitofemoral nerve
Lumbosacral trunks
Femoral branch of genitofemoral nerve
Obturator nerve
Psoas major muscle (cut)
Obturator nerve
Inguinal (Poupart's) ligament

Schema

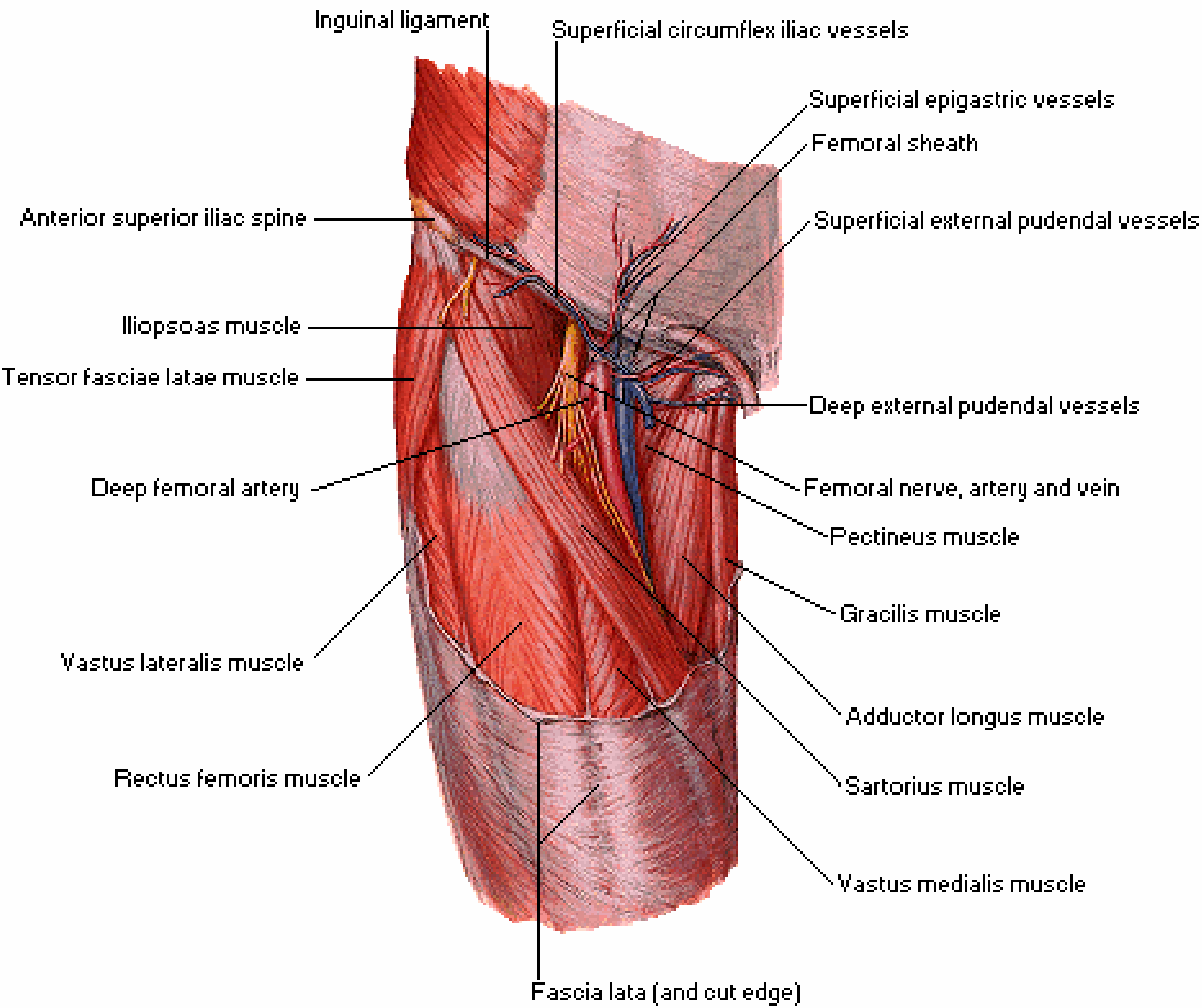


Anterior division
Posterior division
L4
L5
S1
S2
S3
S4
S5
Lumbosacral trunk
Gray rami communicantes
Pelvic splanchnic nerves (parasympathetic to inferior hypogastric [pelvic] plexus)
Coccygeal nerve
Anococcygeal nerve
Perineal branch of 4th sacral nerve
Nerve to levator ani and coccygeus muscles
Pudendal nerve
Perforating cutaneous nerve
Posterior femoral cutaneous nerve
Nerve to obturator internus and superior gemellus muscles
Nerve to quadratus femoris and inferior gemellus muscles
Common peroneal nerve (part of sciatic nerve)
Tibial nerve (part of sciatic nerve)
Nerve to piriformis muscle
Inferior gluteal nerve
Superior gluteal nerve

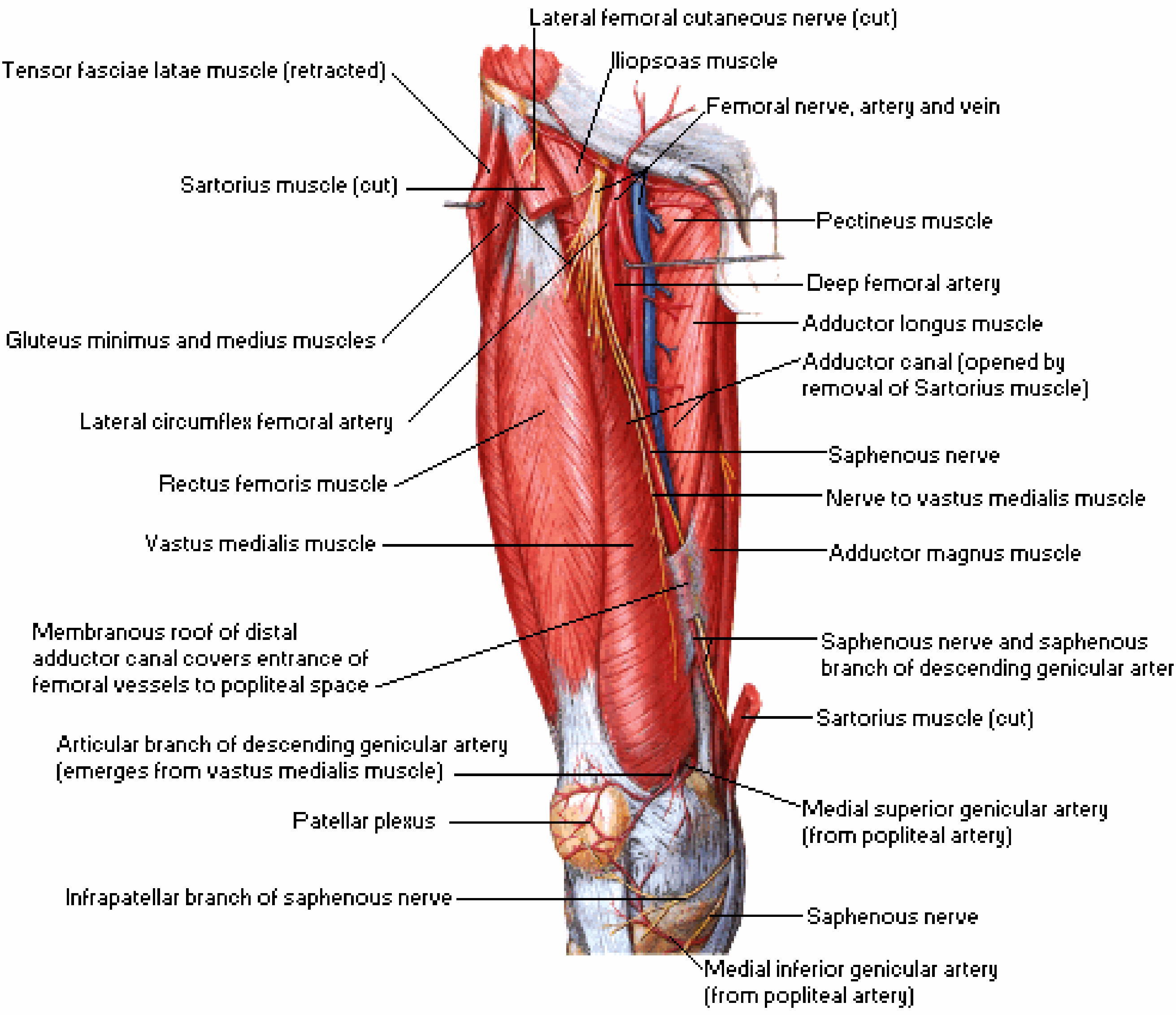


Sympathetic trunk
Gray rami communicantes
Lumbosacral trunk
Psoas major muscle
L5
L4
S1
S2
S3
S4
S5
Co
Superior gluteal artery and nerve
Iliacus muscle
Obturator nerve
Nerve to quadratus femoris muscle
Internal pudendal artery
Superior pubic ramus
Obturator internus muscle
Nerve to obturator internus muscle
Inferior gluteal artery
Pelvic splanchnic nerves (cut) (parasympathetic to pelvic plexus)
Sacral splanchnic nerves (cut) (sympathetic to pelvic plexus)
Piriformis muscle
Pudendal nerve
Coccygeus muscle
Levator ani muscle

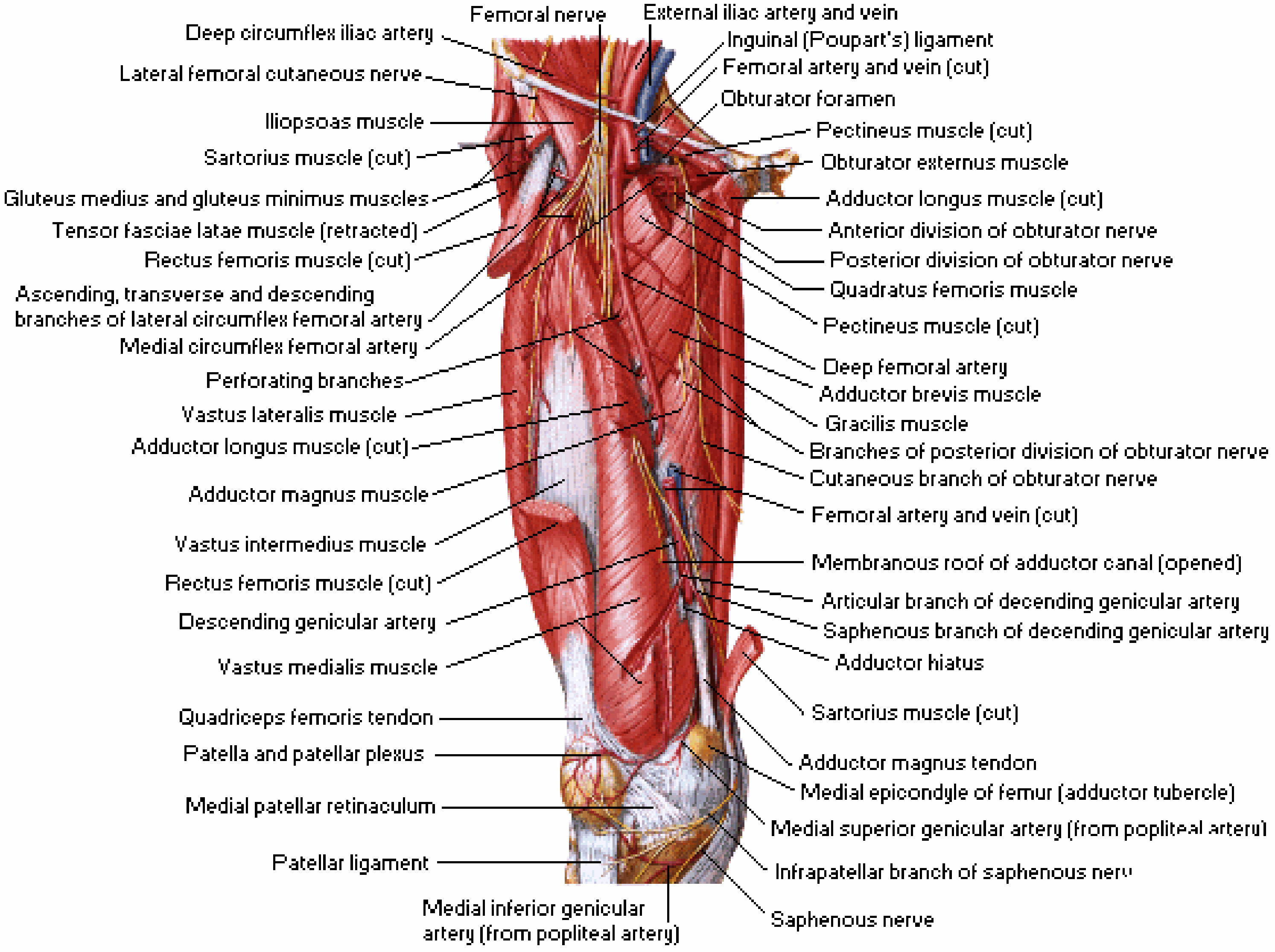
Superficial Anterior View



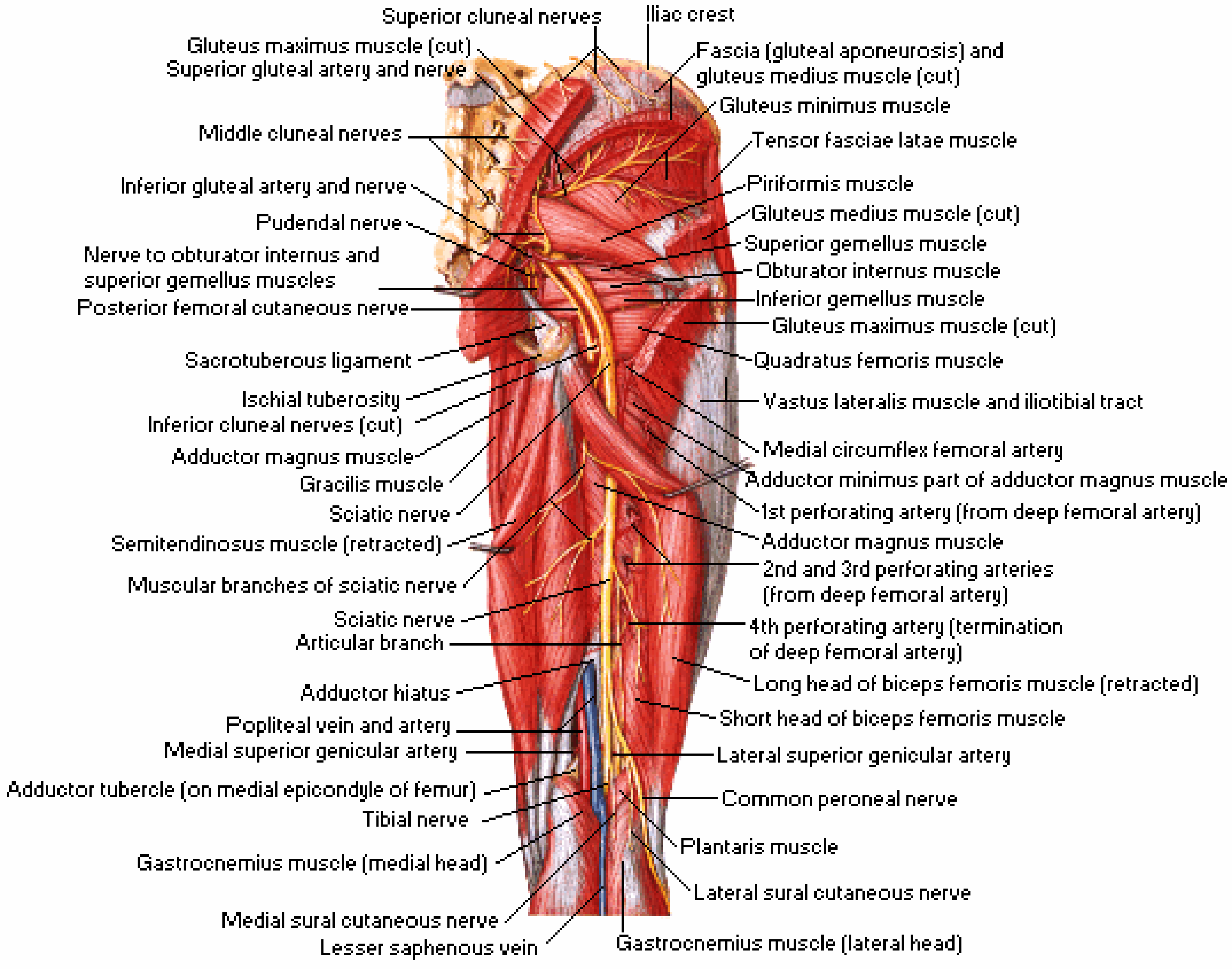
Deeper Anterior View

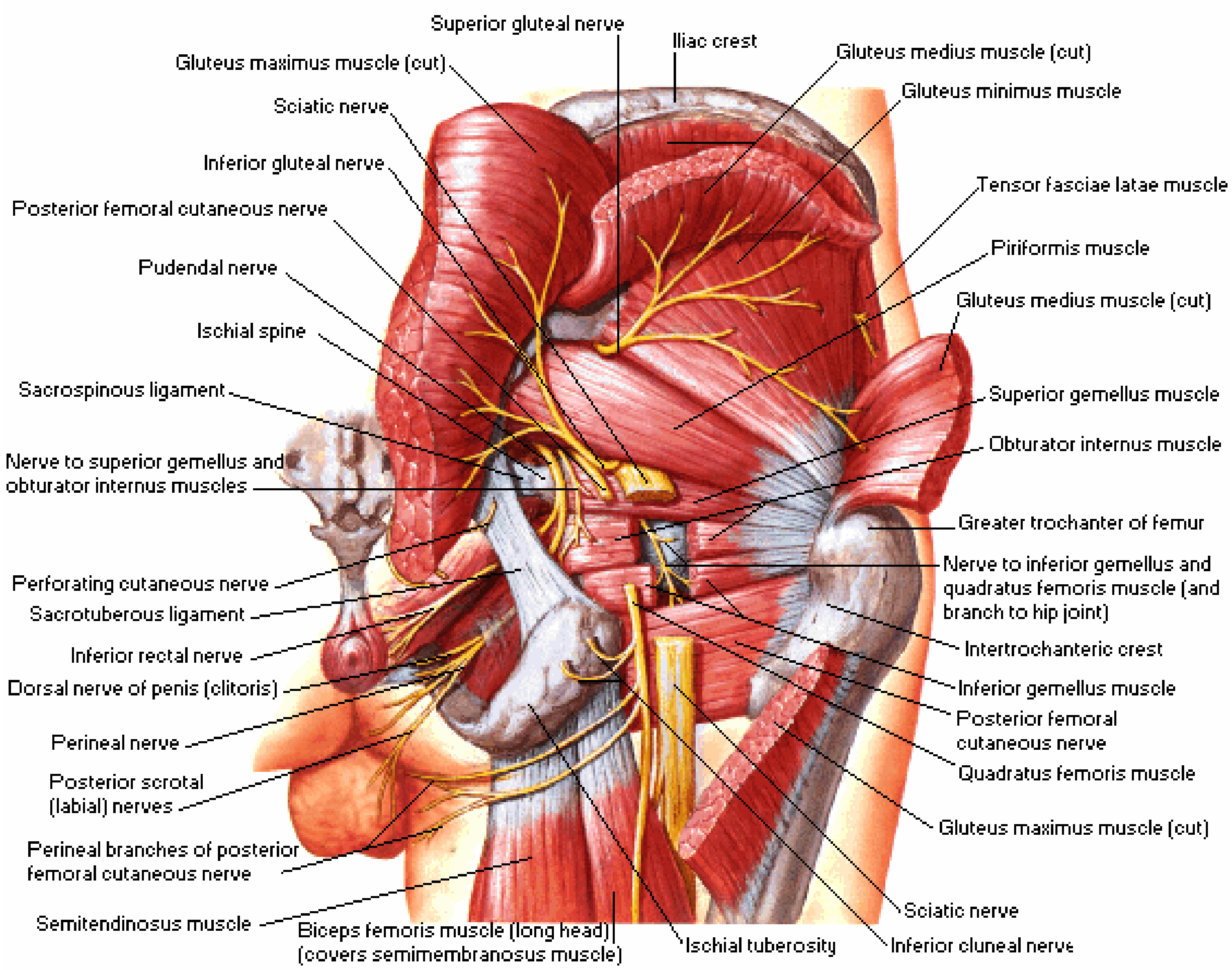


Deepest Anterior View



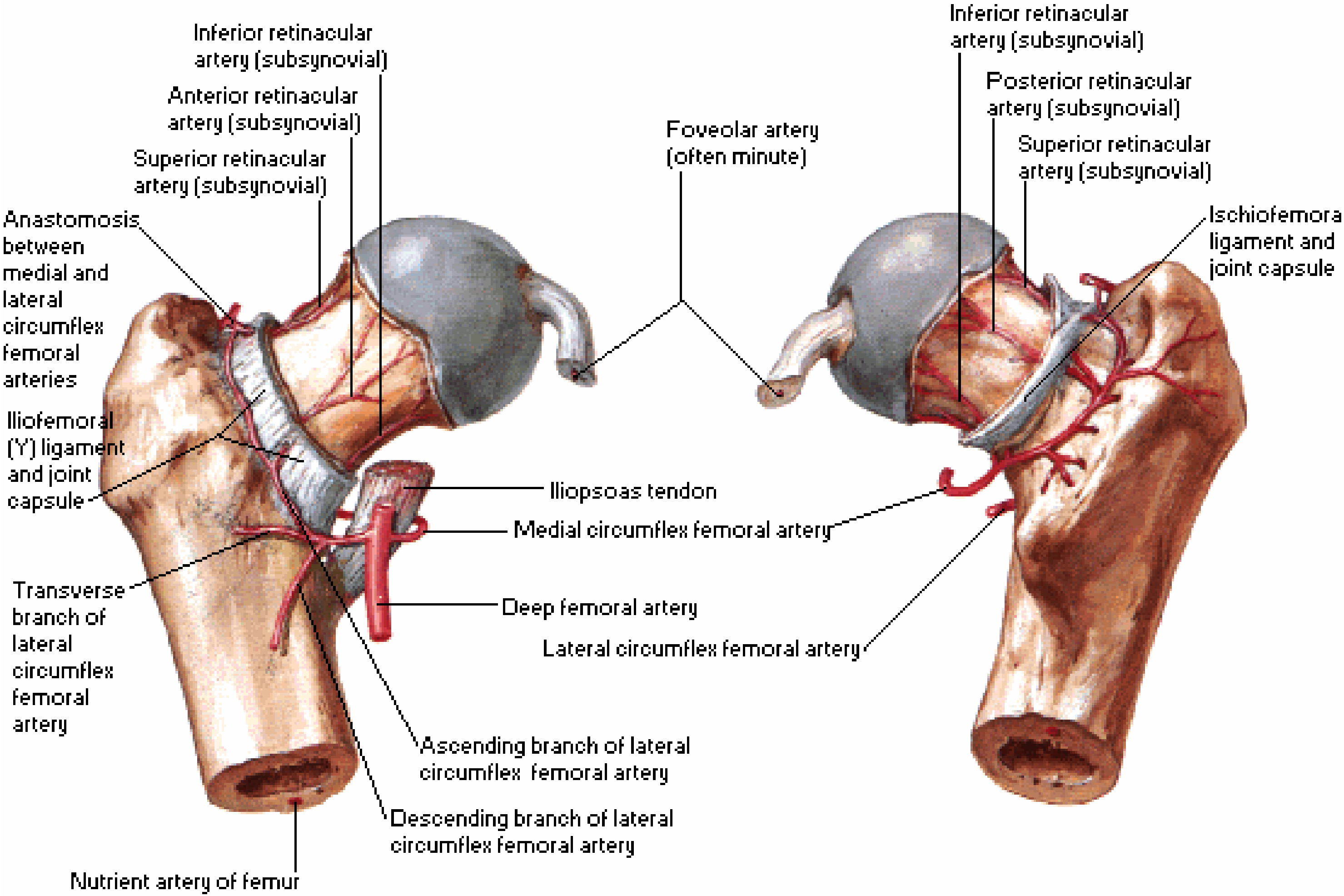
Posterior View



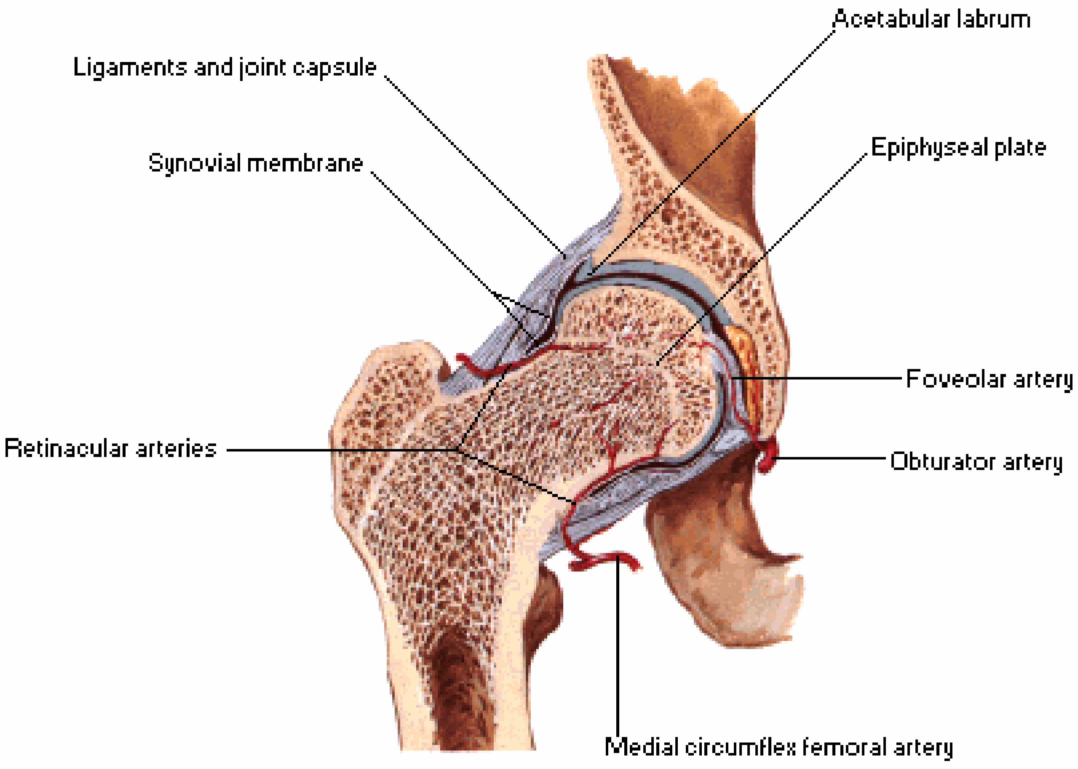


Superior gluteal nerve
Iliac crest
Gluteus maximus muscle (cut)
Gluteus medius muscle (cut)
Gluteus minimus muscle
Sciatic nerve
Inferior gluteal nerve
Tensor fasciae latae muscle
Posterior femoral cutaneous nerve
Piriformis muscle
Pudendal nerve
Gluteus medius muscle (cut)
Ischial spine
Sacrospinous ligament
Superior gemellus muscle
Obturator internus muscle
Nerve to superior gemellus and obturator internus muscles
Greater trochanter of femur
Nerve to inferior gemellus and quadratus femoris muscle (and branch to hip joint)
Perforating cutaneous nerve
Sacrotuberous ligament
Intertrochanteric crest
Inferior rectal nerve
Inferior gemellus muscle
Dorsal nerve of penis (clitoris)
Posterior femoral cutaneous nerve
Perineal nerve
Quadratus femoris muscle
Posterior scrotal (labial) nerves
Gluteus maximus muscle (cut)
Perineal branches of posterior femoral cutaneous nerve
Sciatic nerve
Semitendinosus muscle
Biceps femoris muscle (long head) (covers semimembranosus muscle)
Ischial tuberosity
Inferior cluneal nerve

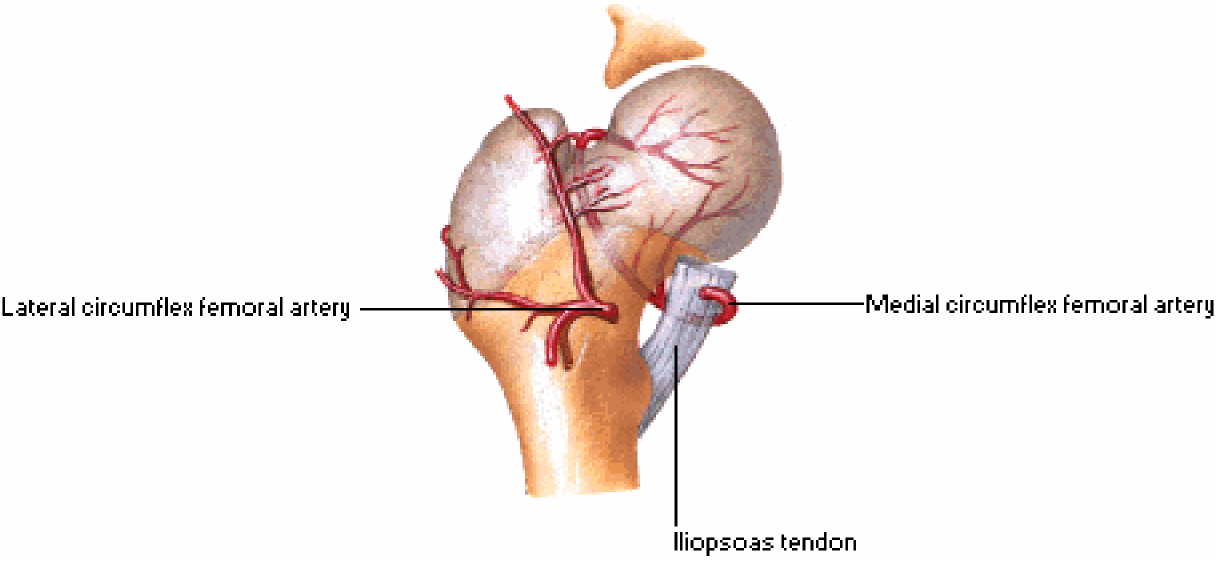
Anterior and Posterior Views



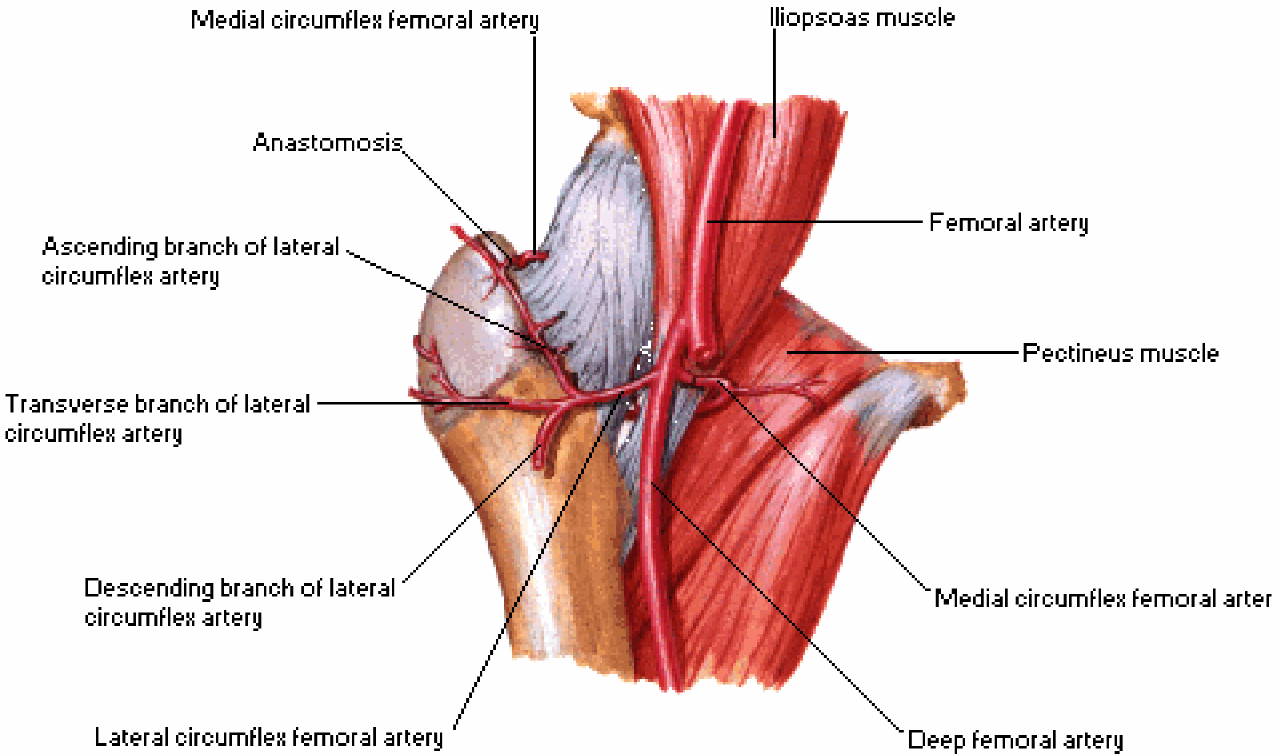
Coronal Section



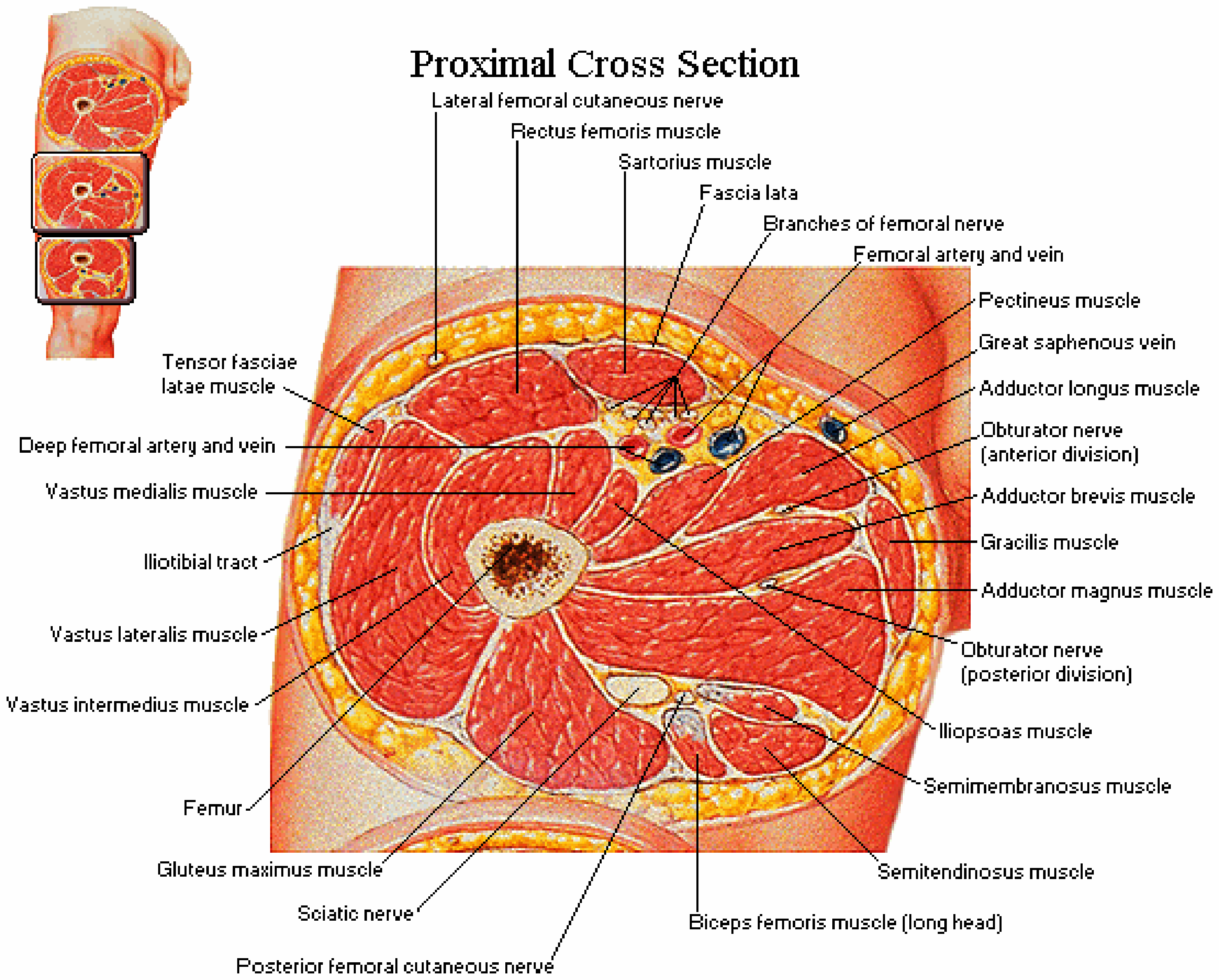
Femur of Child - Anterior View

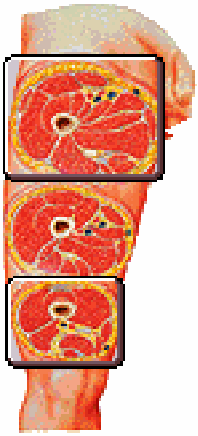


Anterior View in Situ

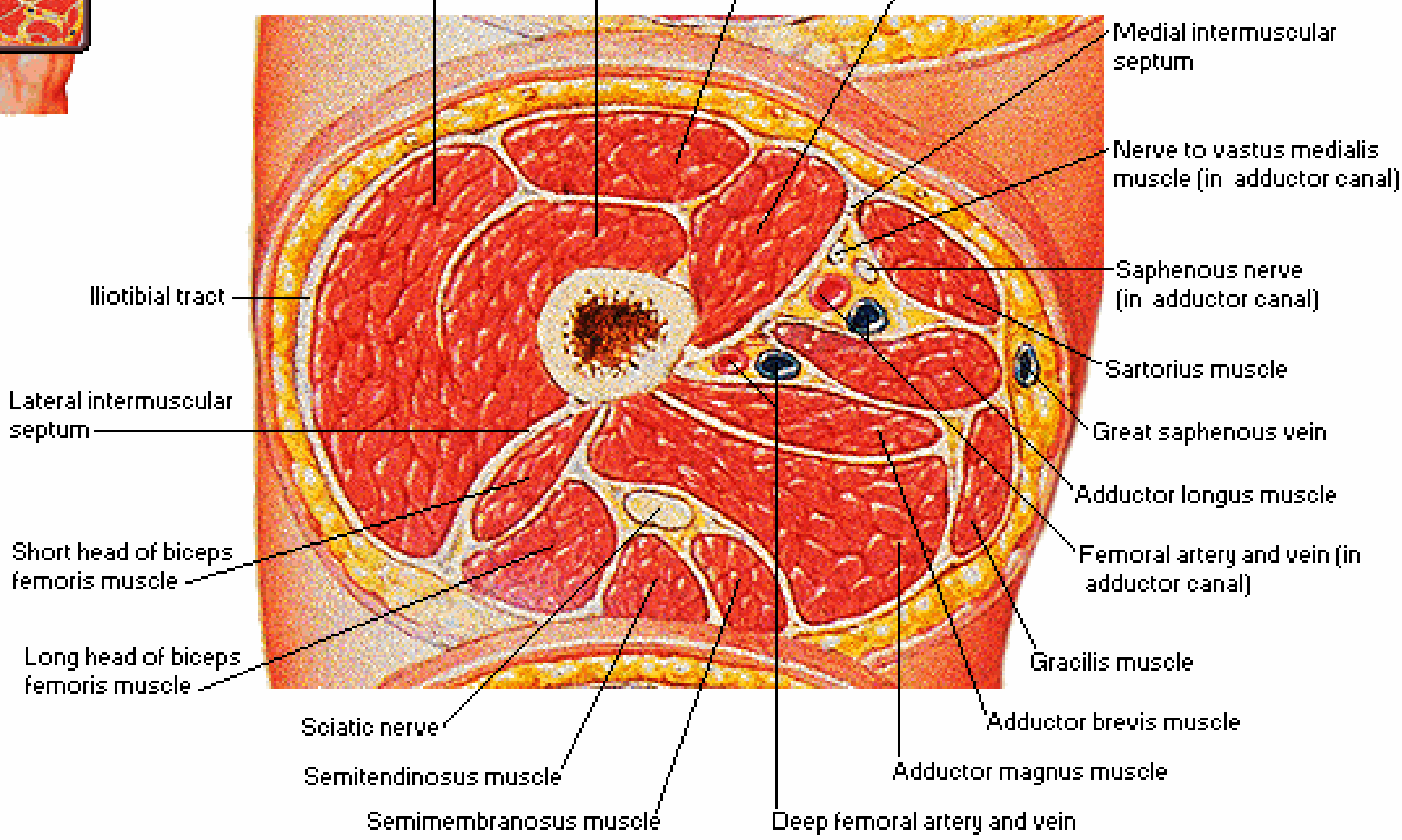


Proximal Cross Section

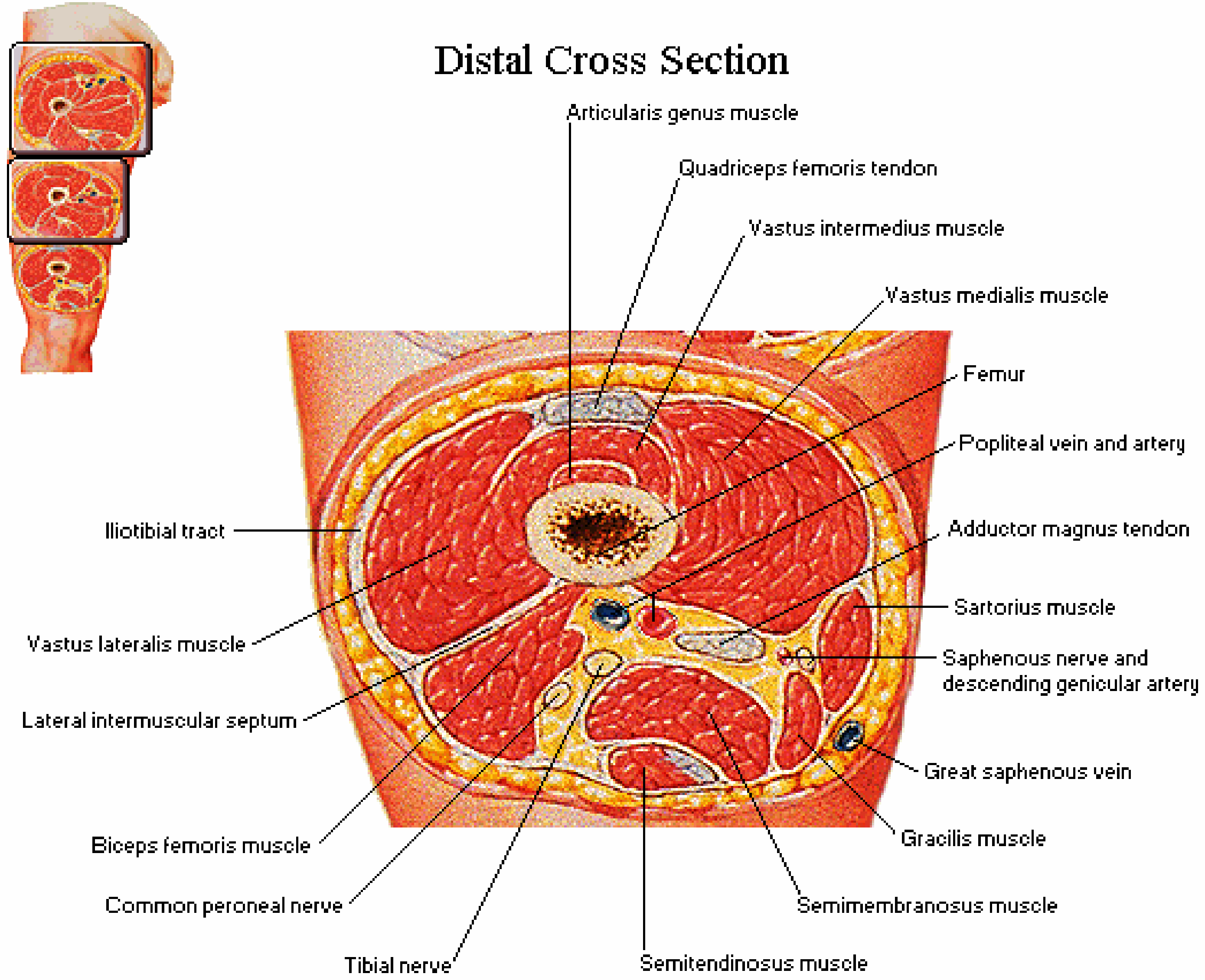




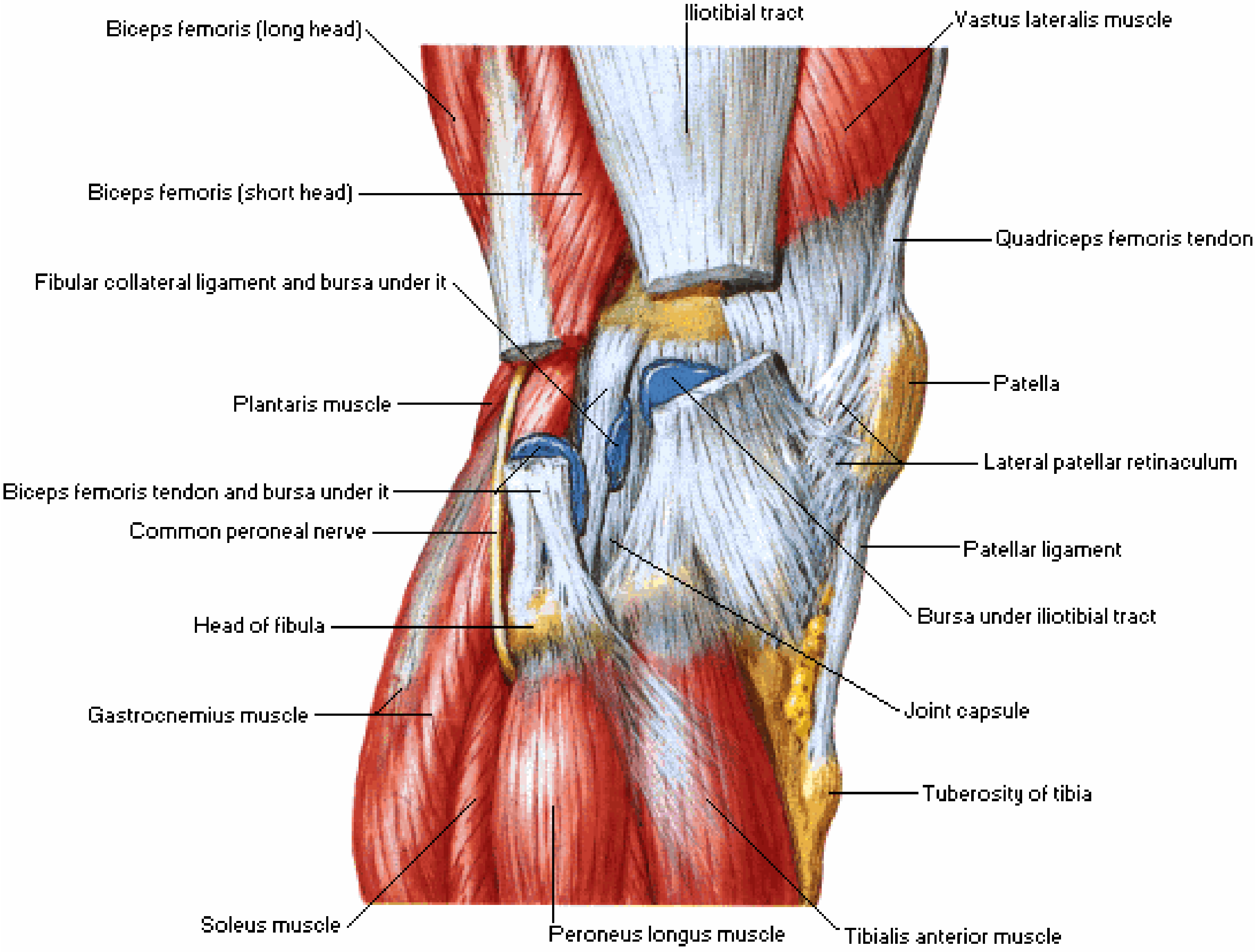
Middle Cross Section



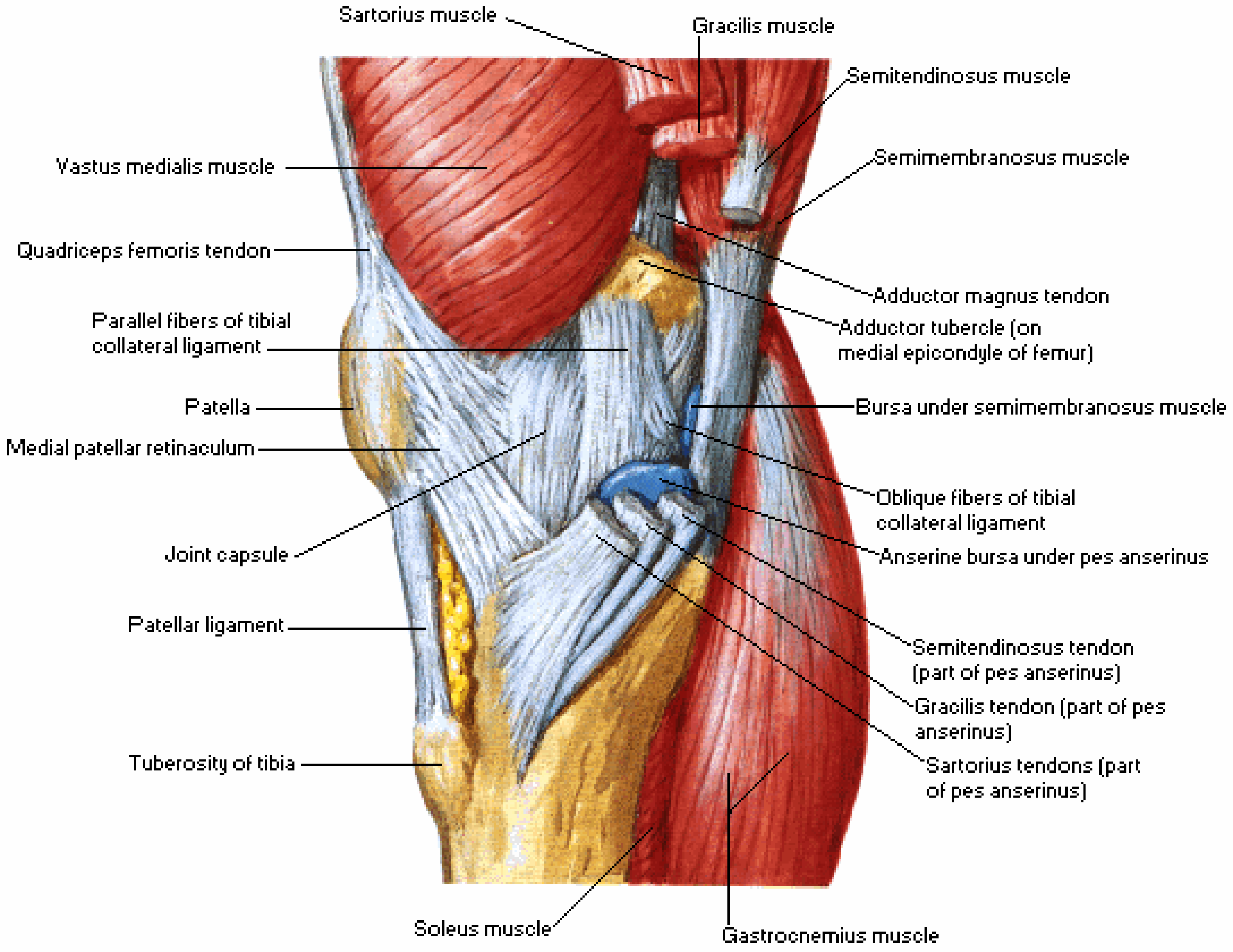
Distal Cross Section



Lateral View

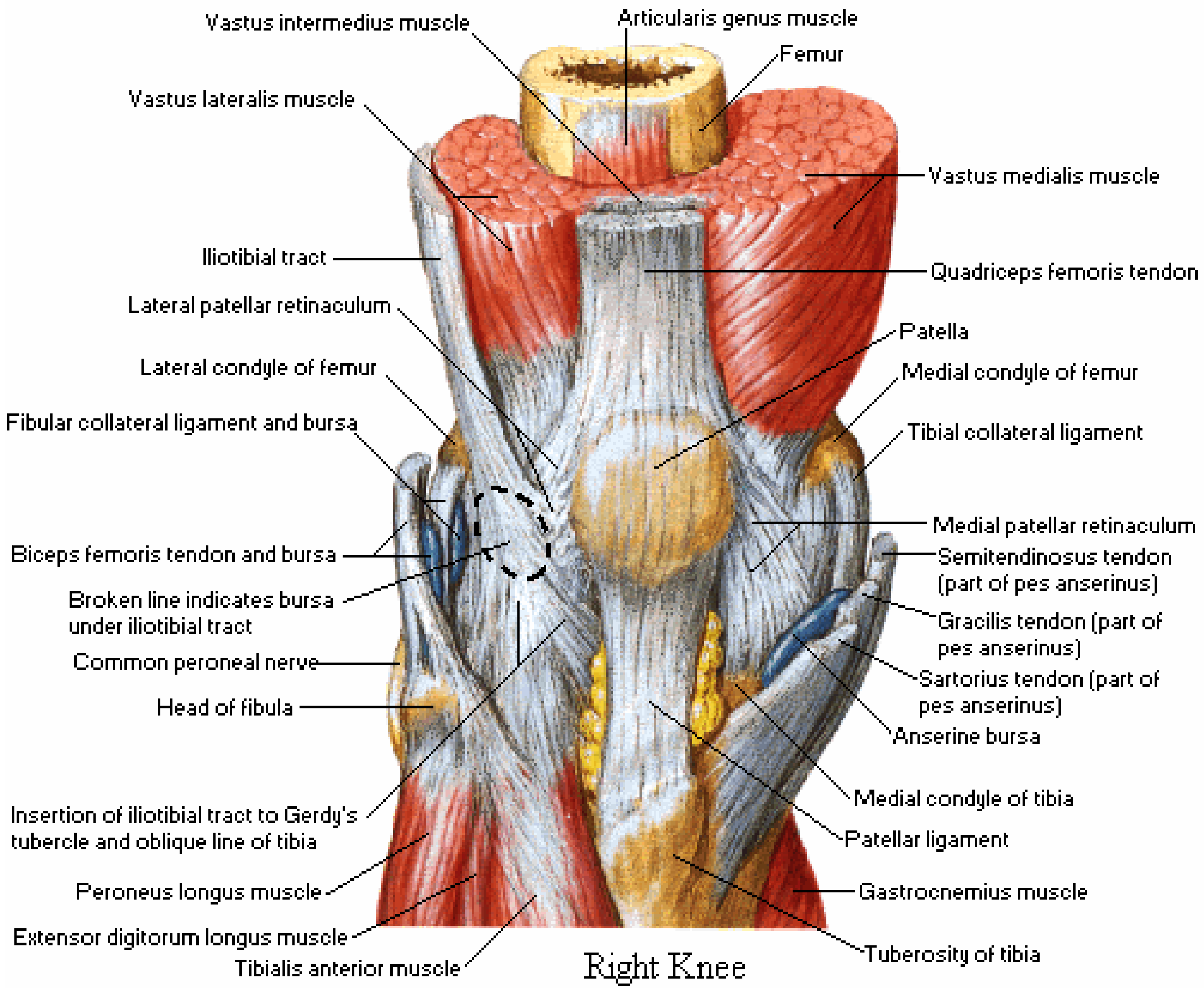


Medial View



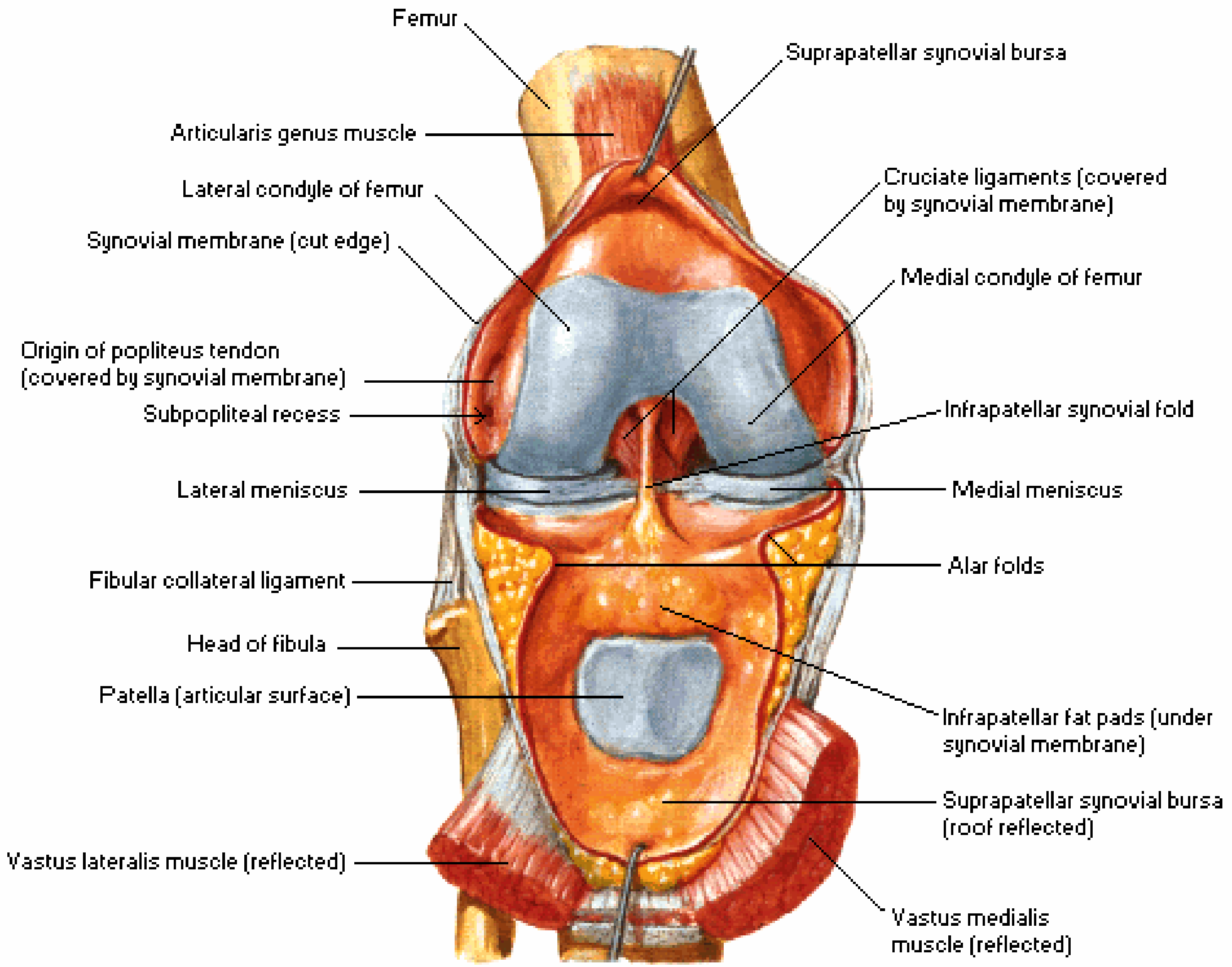
Sartorius muscle
Gracilis muscle
Semitendinosus muscle
Semimembranosus muscle
Vastus medialis muscle
Quadriceps femoris tendon
Adductor magnus tendon
Adductor tubercle (on medial epicondyle of femur)
Parallel fibers of tibial collateral ligament
Patella
Bursa under semimembranosus muscle
Medial patellar retinaculum
Oblique fibers of tibial collateral ligament
Joint capsule
Anserine bursa under pes anserinus
Patellar ligament
Semitendinosus tendon (part of pes anserinus)
Gracilis tendon (part of pes anserinus)
Tuberosity of tibia
Sartorius tendons (part of pes anserinus)
Soleus muscle
Gastrocnemius muscle

Anterior View



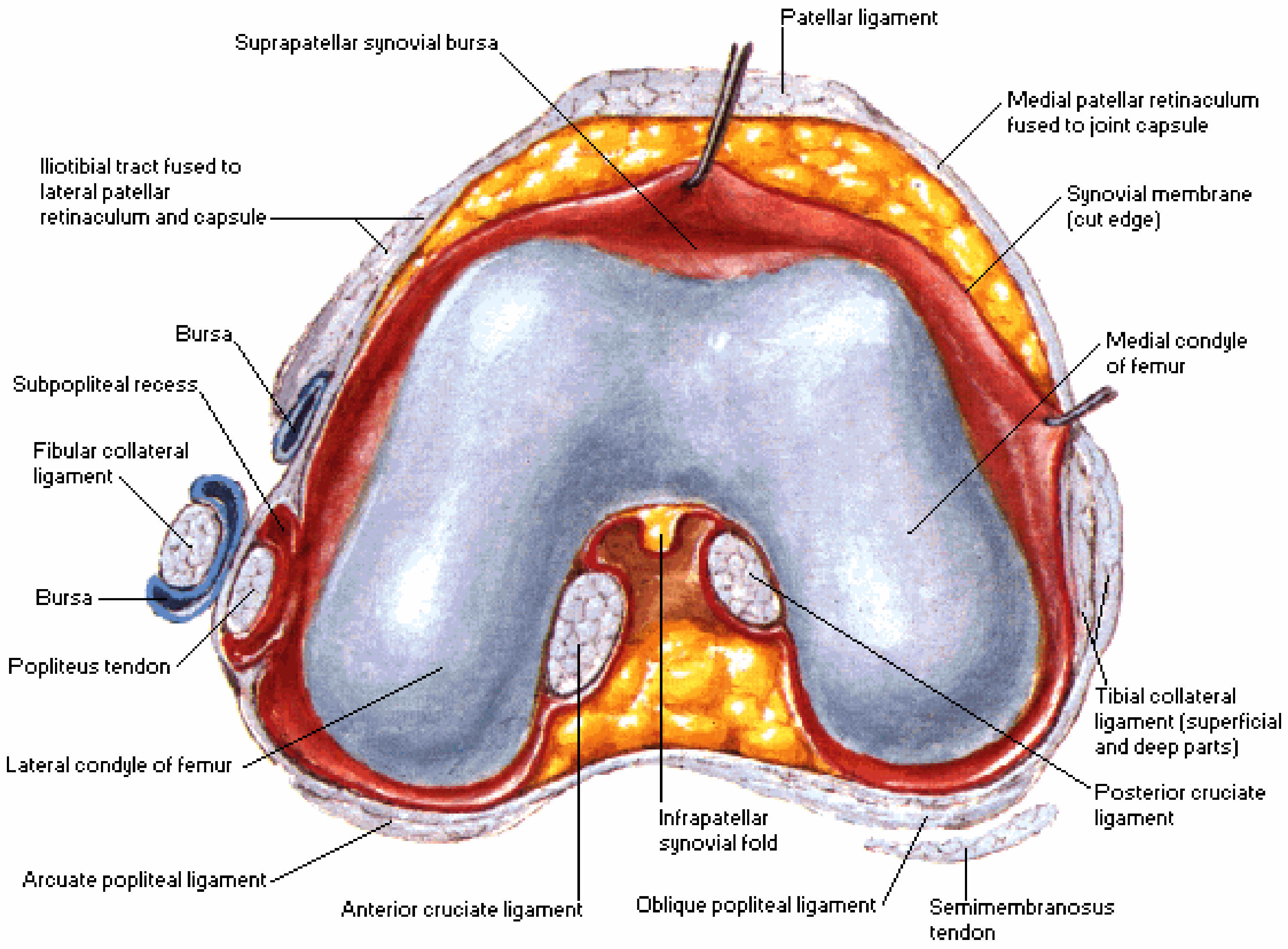
Right Knee

Right Knee Slightly in Flexion [Joint Opened]

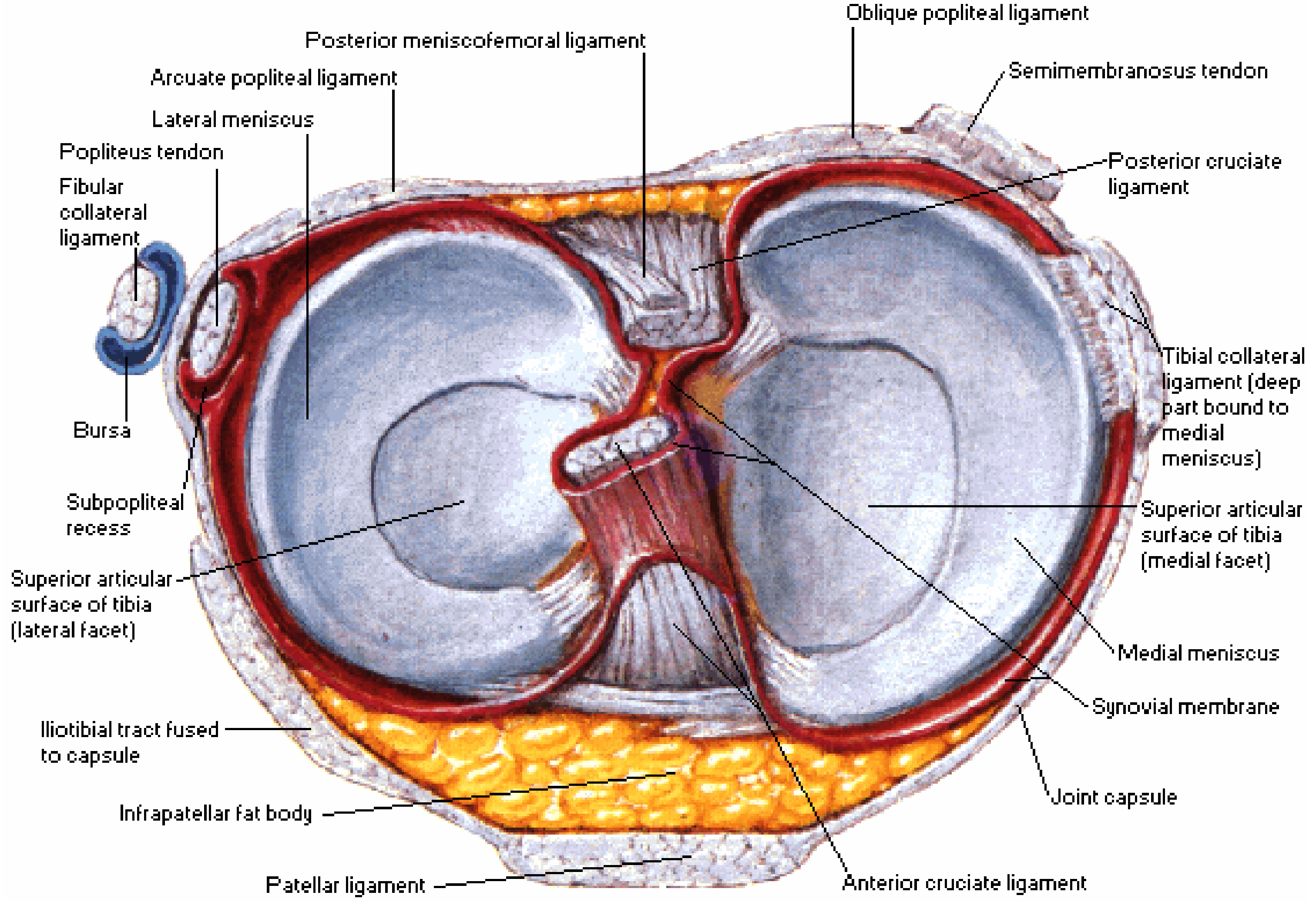


Anterior View

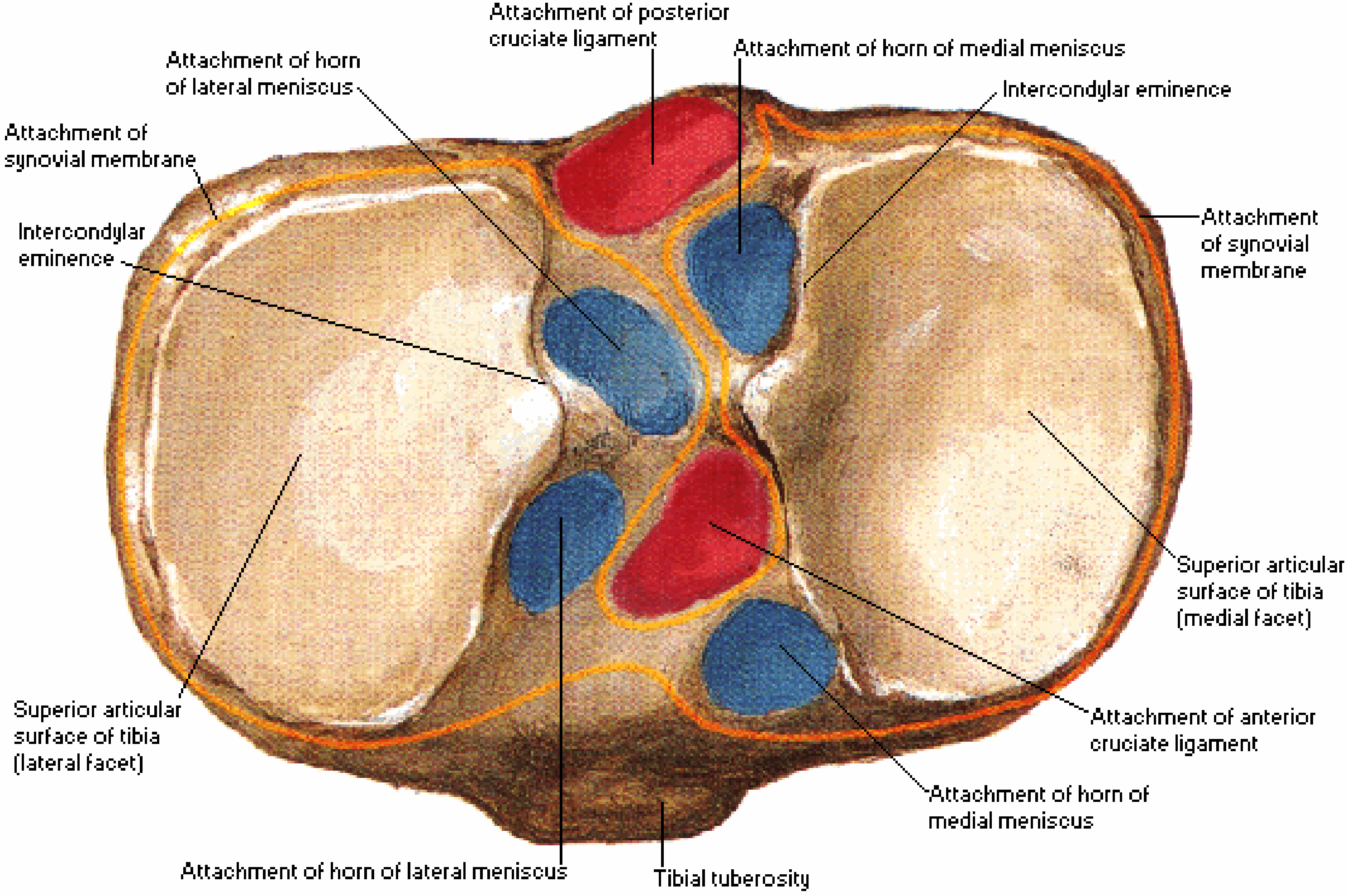
Inferior View



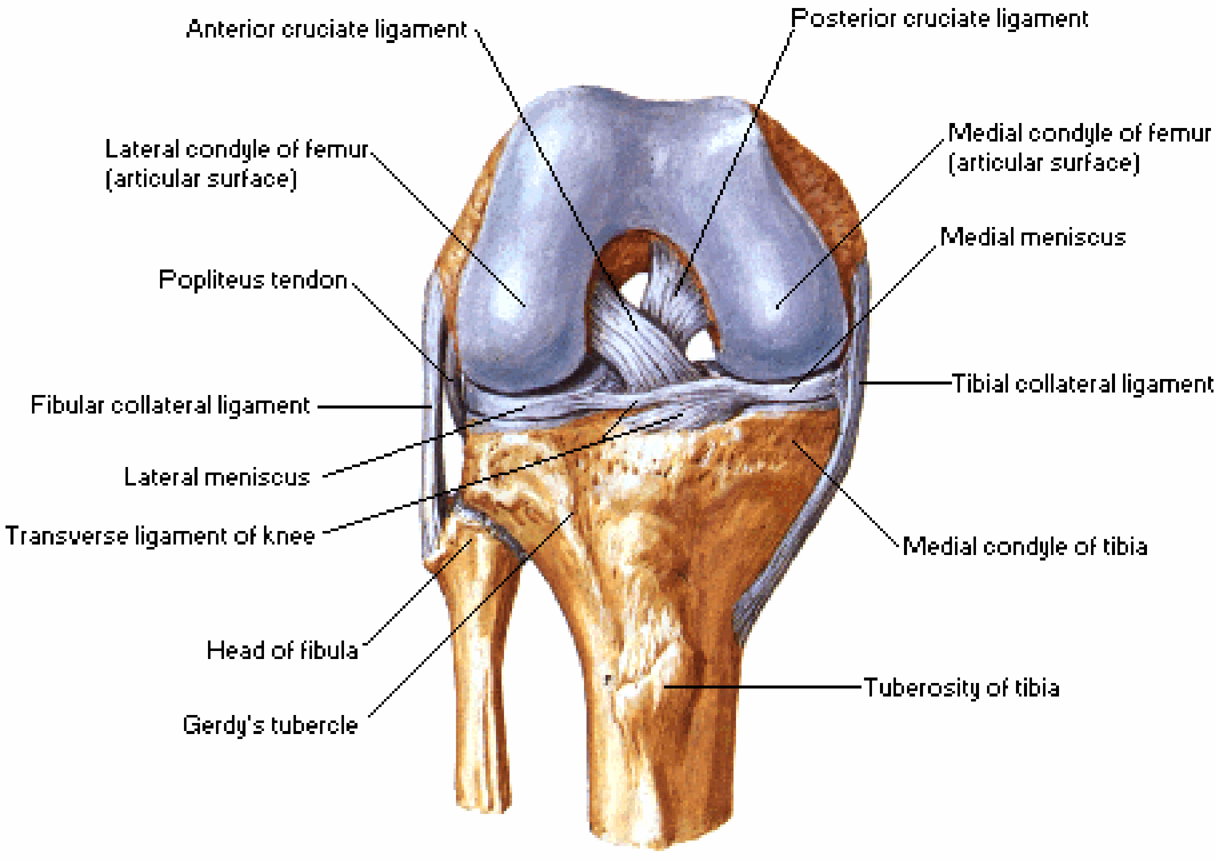
Superior View



Superior View, Ligaments and Cartilage Removed

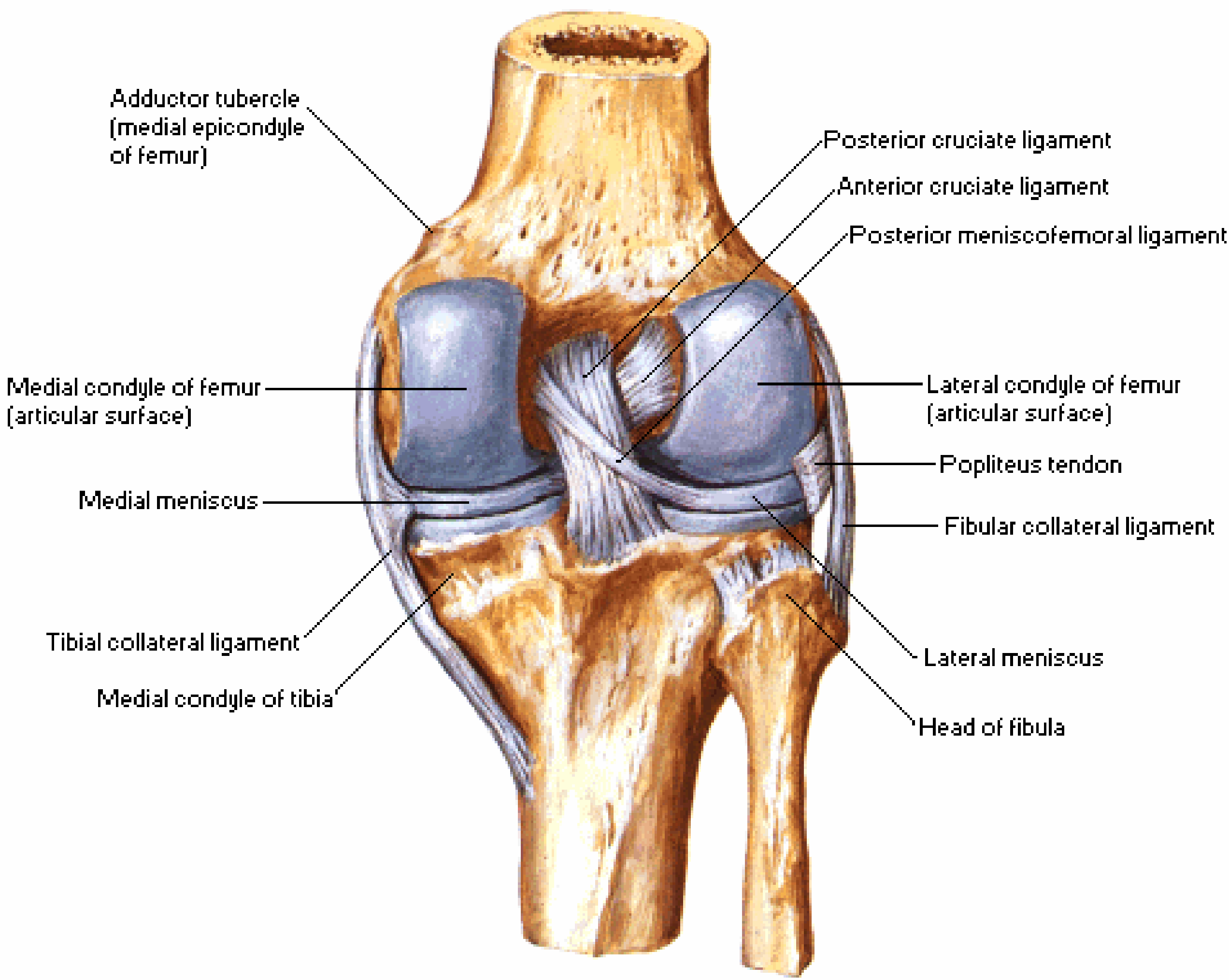


Right Knee in Flexion



Anterior View

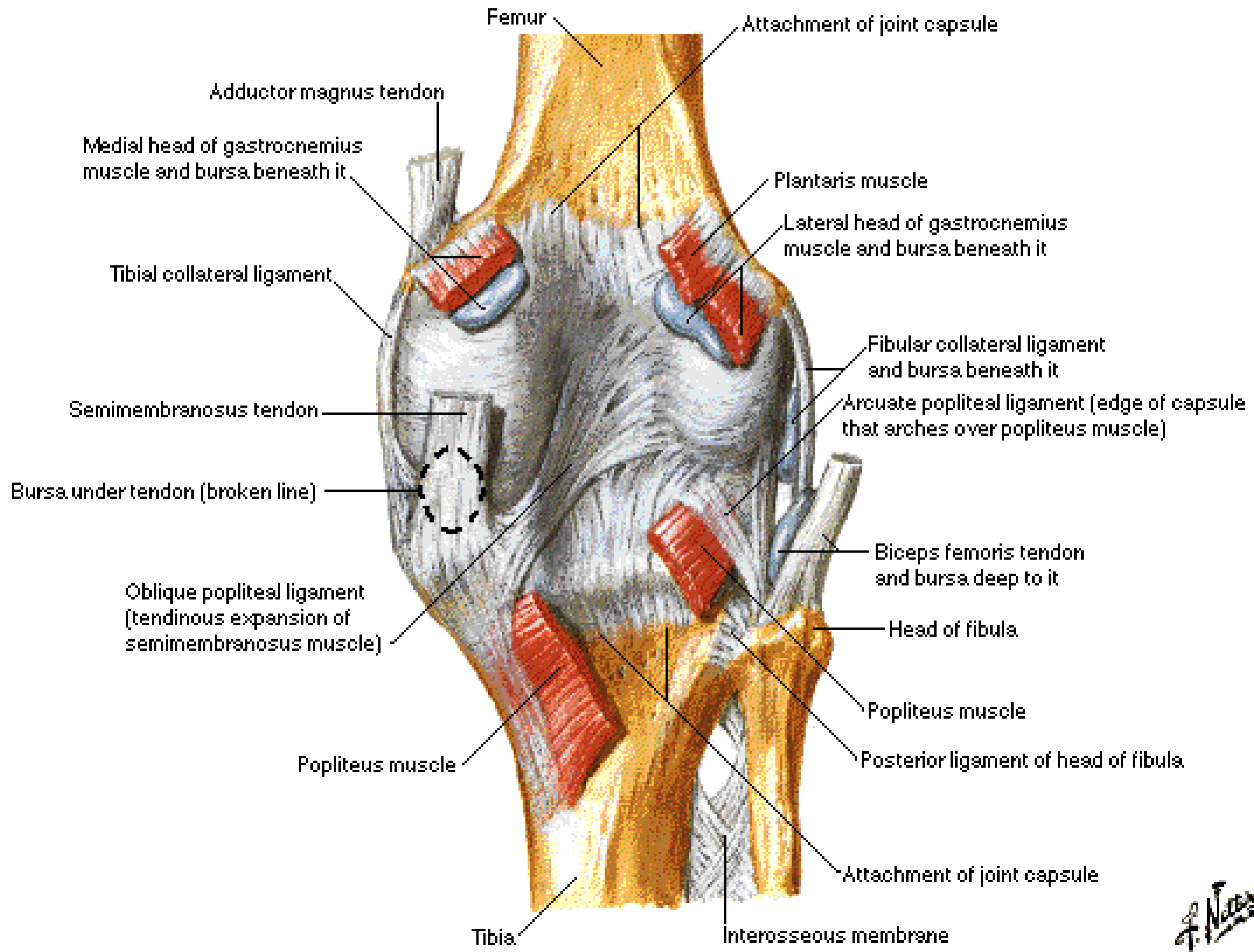
Right Knee in Extension



Posterior View

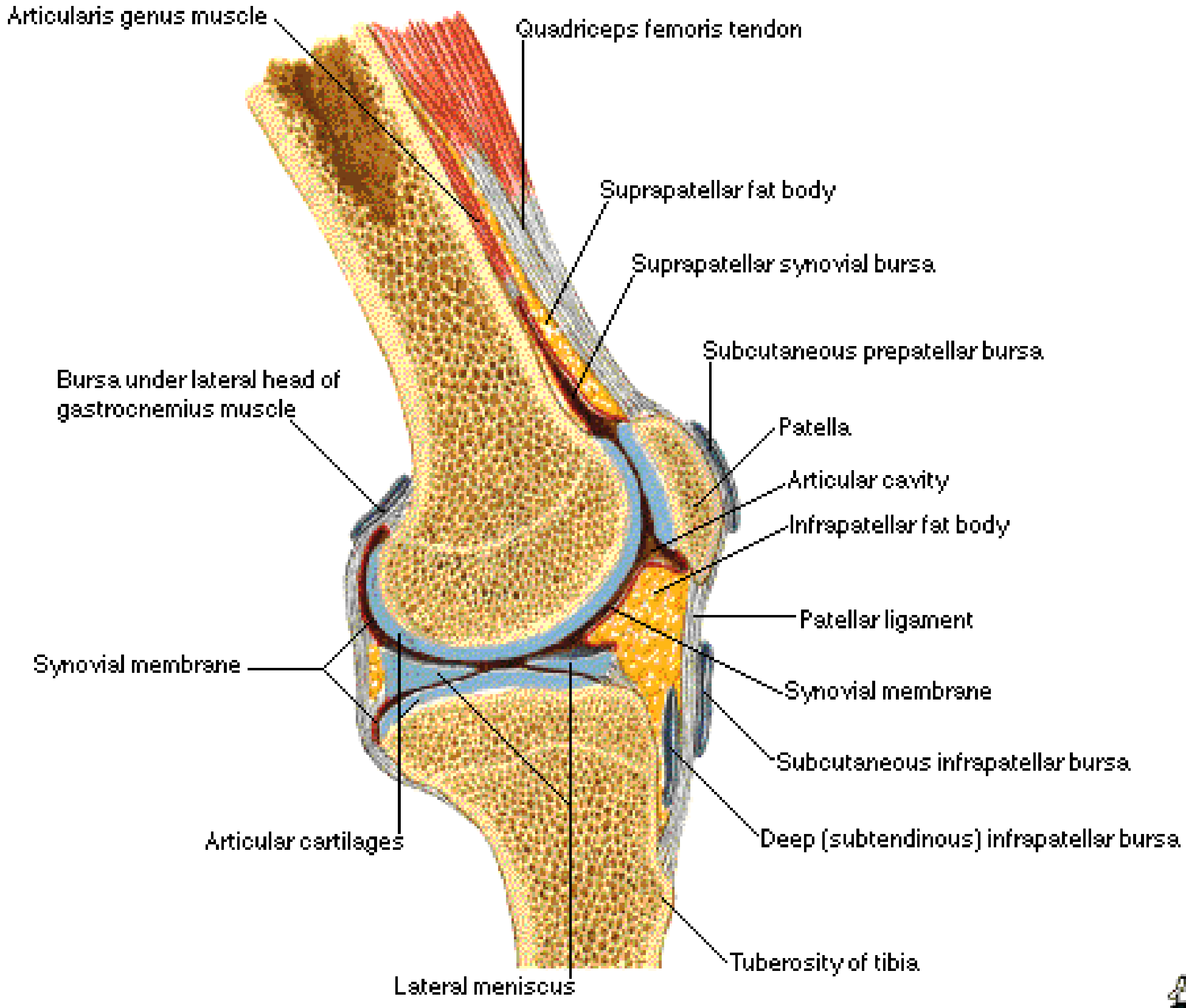
Knee

Posterior View

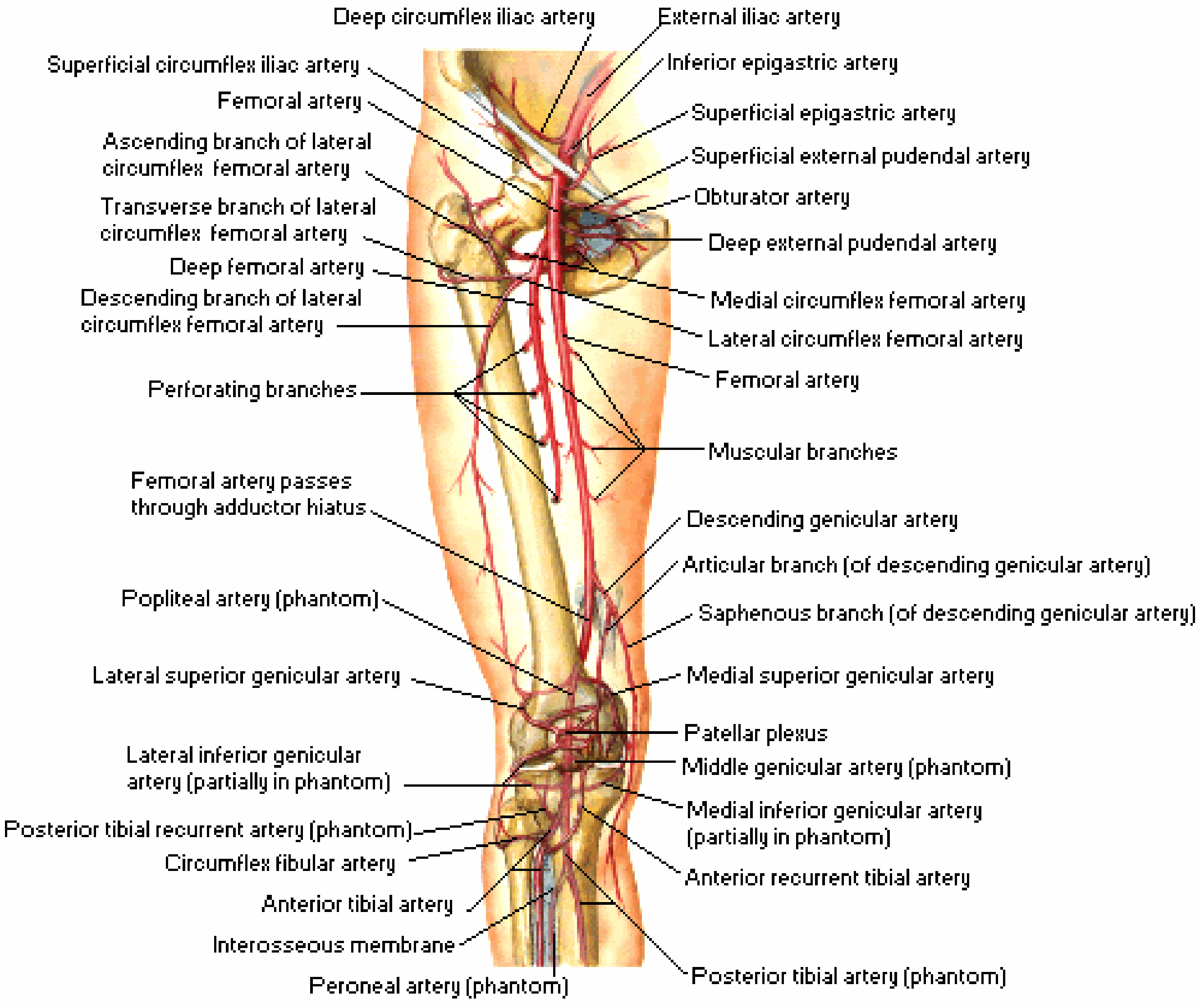


Knee

Parasagittal Section - Lateral to Midline of Knee

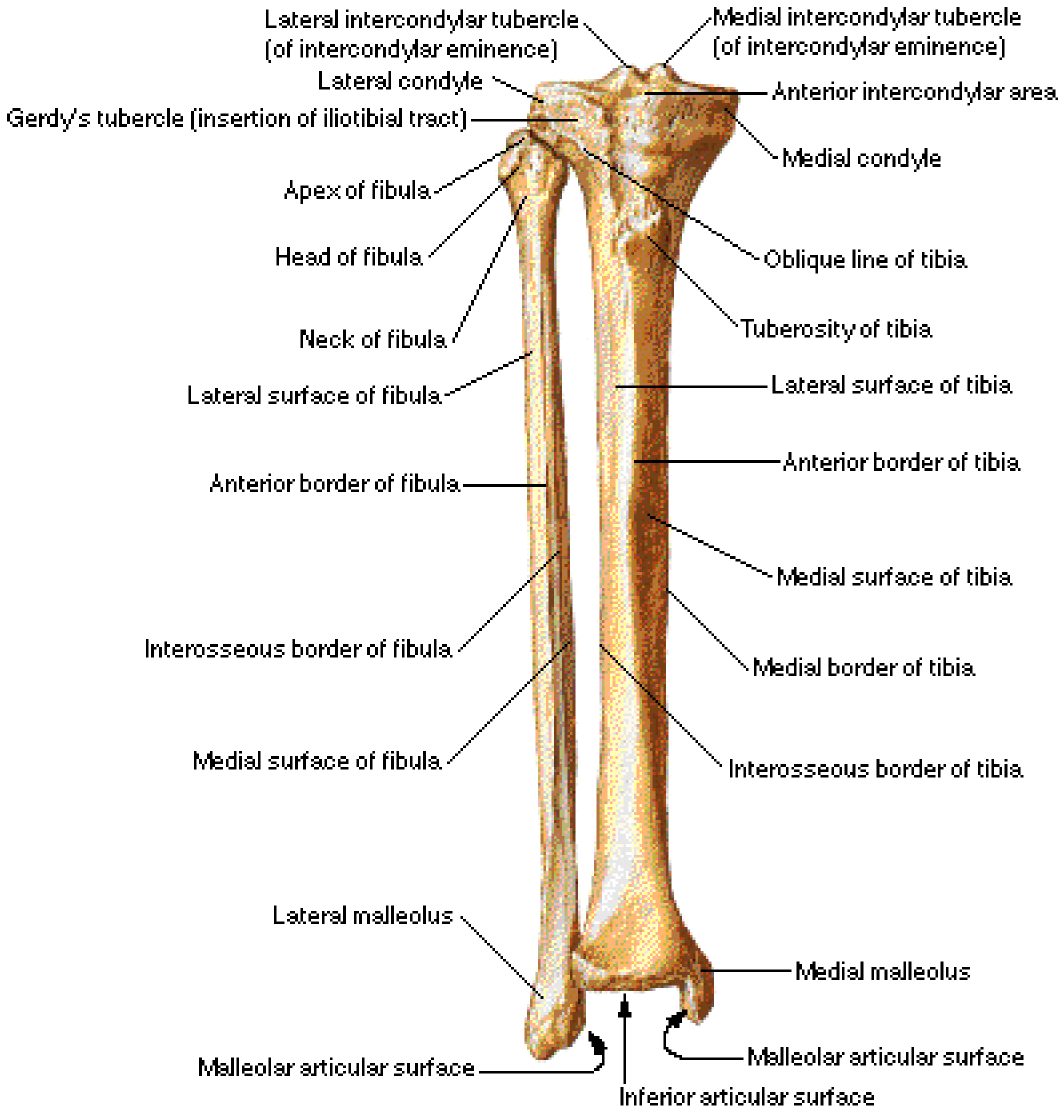


Schema

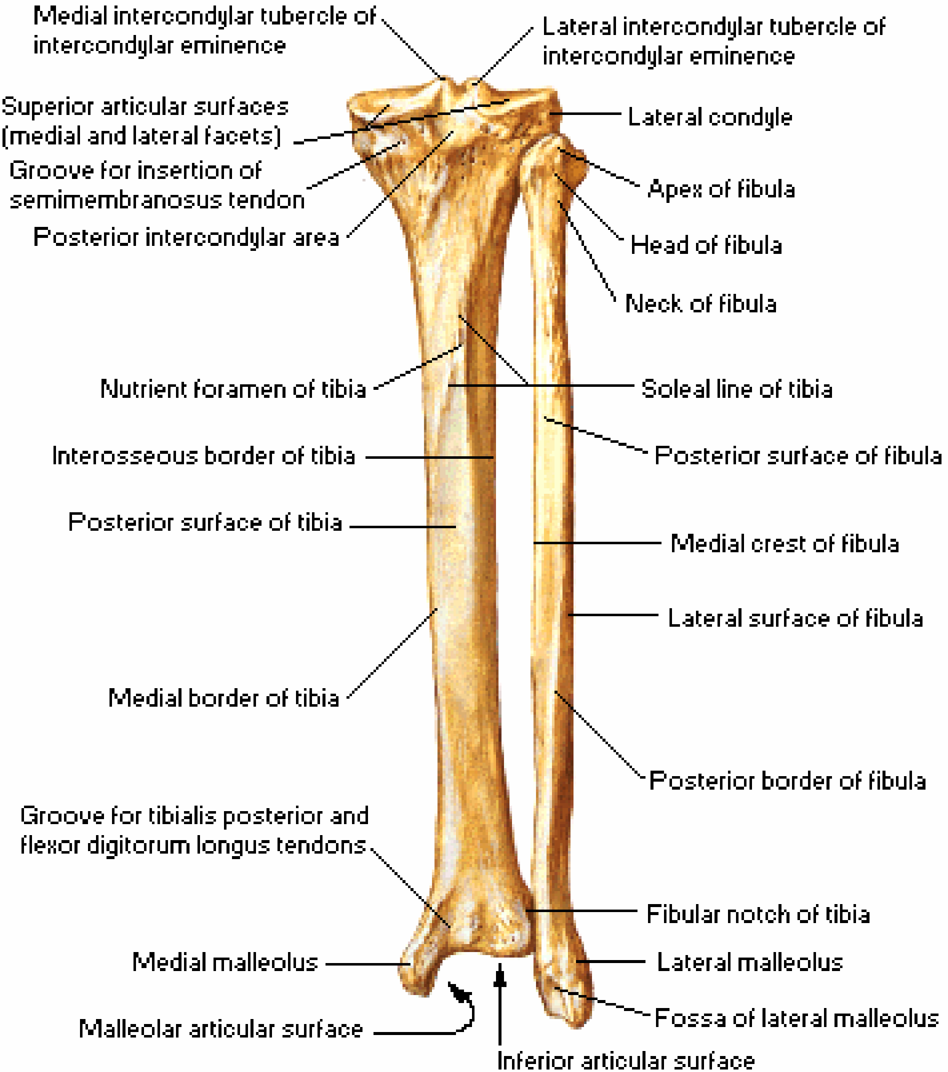

Deep circumflex iliac artery
External iliac artery
Superficial circumflex iliac artery
Inferior epigastric artery
Femoral artery
Superficial epigastric artery
Ascending branch of lateral circumflex femoral artery
Superficial external pudendal artery
Obturator artery
Transverse branch of lateral circumflex femoral artery
Deep external pudendal artery
Deep femoral artery
Medial circumflex femoral artery
Descending branch of lateral circumflex femoral artery
Lateral circumflex femoral artery
Femoral artery
Perforating branches
Muscular branches
Femoral artery passes through adductor hiatus
Descending genicular artery
Articular branch (of descending genicular artery)
Popliteal artery (phantom)
Saphenous branch (of descending genicular artery)
Lateral superior genicular artery
Medial superior genicular artery
Patellar plexus
Lateral inferior genicular artery (partially in phantom)
Middle genicular artery (phantom)
Medial inferior genicular artery (partially in phantom)
Posterior tibial recurrent artery (phantom)
Circumflex fibular artery
Anterior recurrent tibial artery
Anterior tibial artery
Interosseous membrane
Posterior tibial artery (phantom)
Peroneal artery (phantom)

Tibia and Fibula of Right Leg

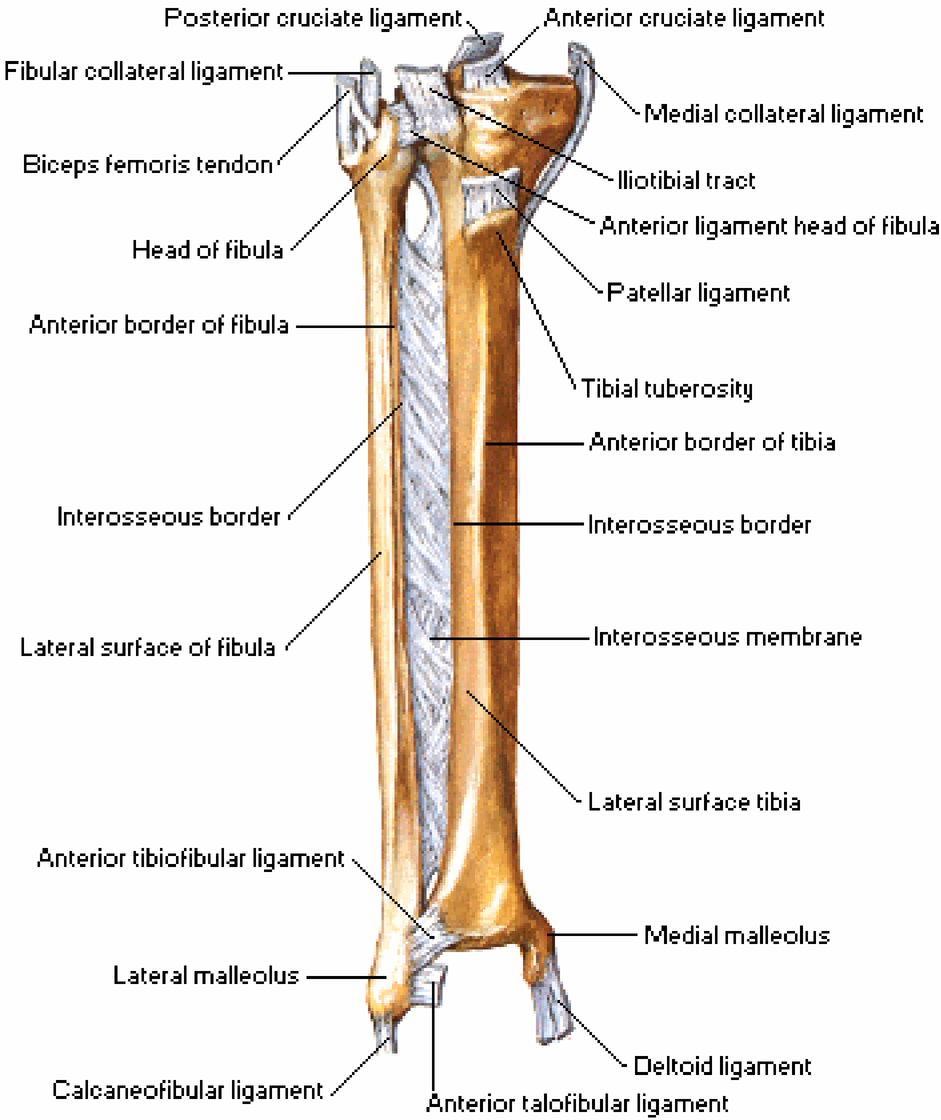
Anterior View



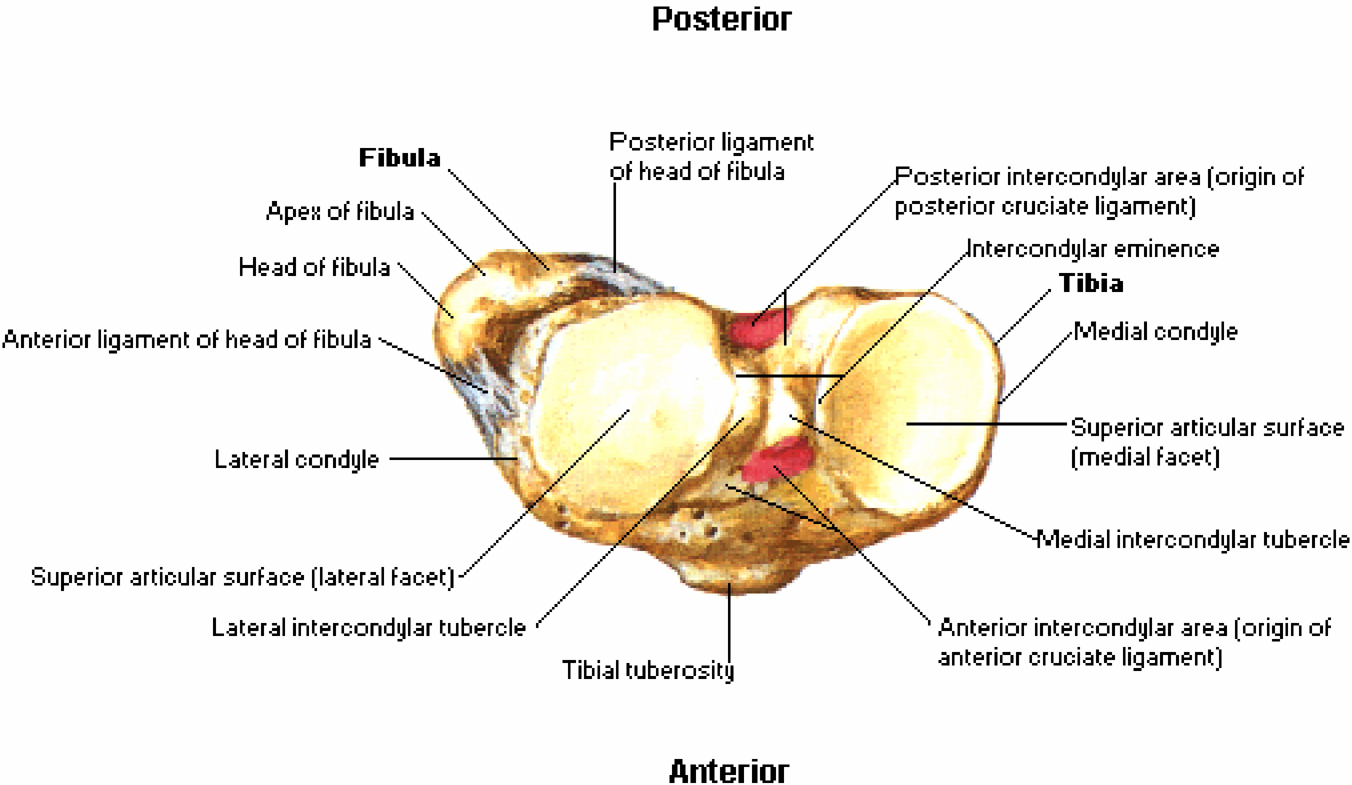
Posterior View



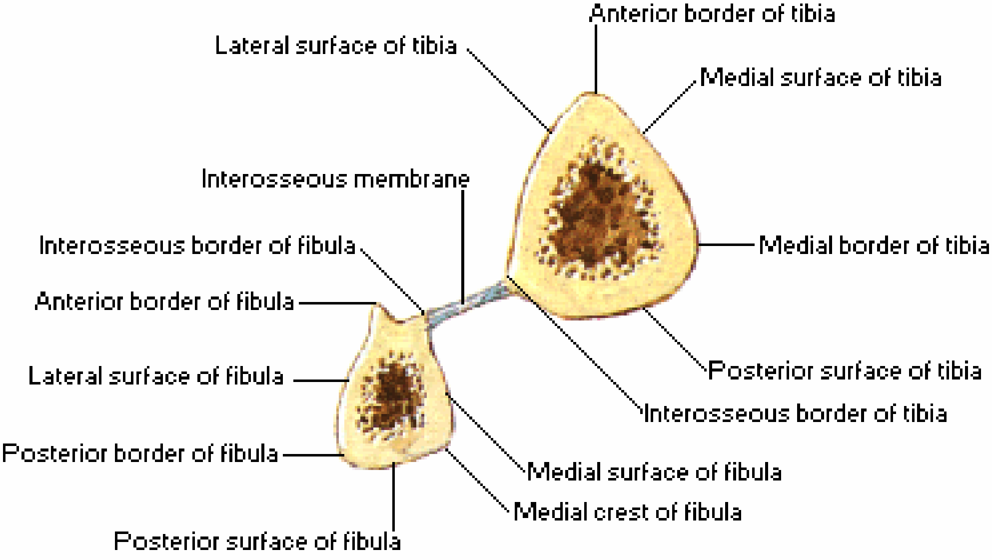
Anterior View - Ligament Attachments



Superior View

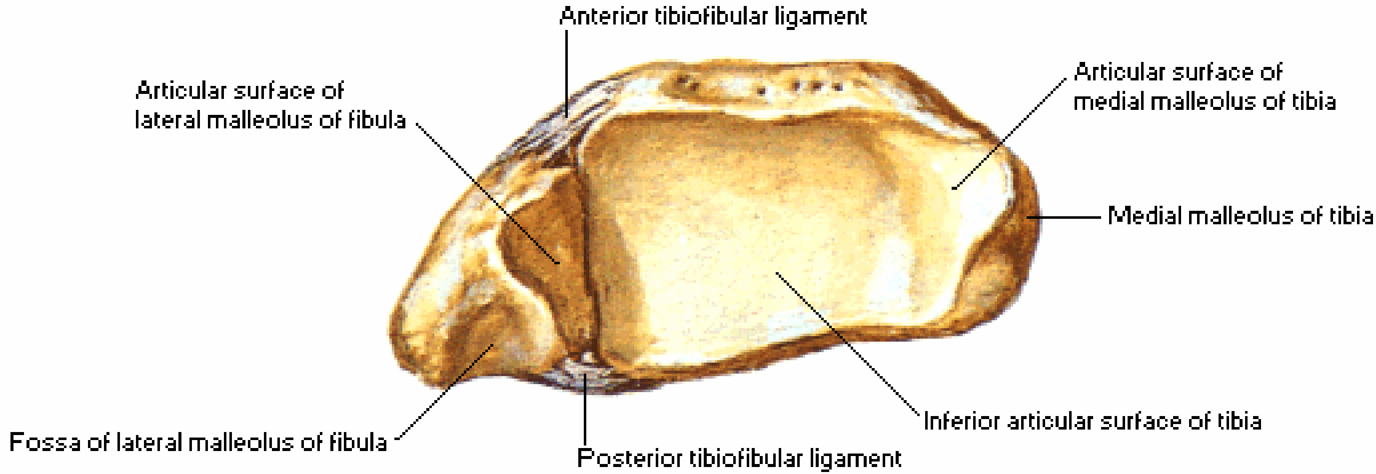


Cross Section



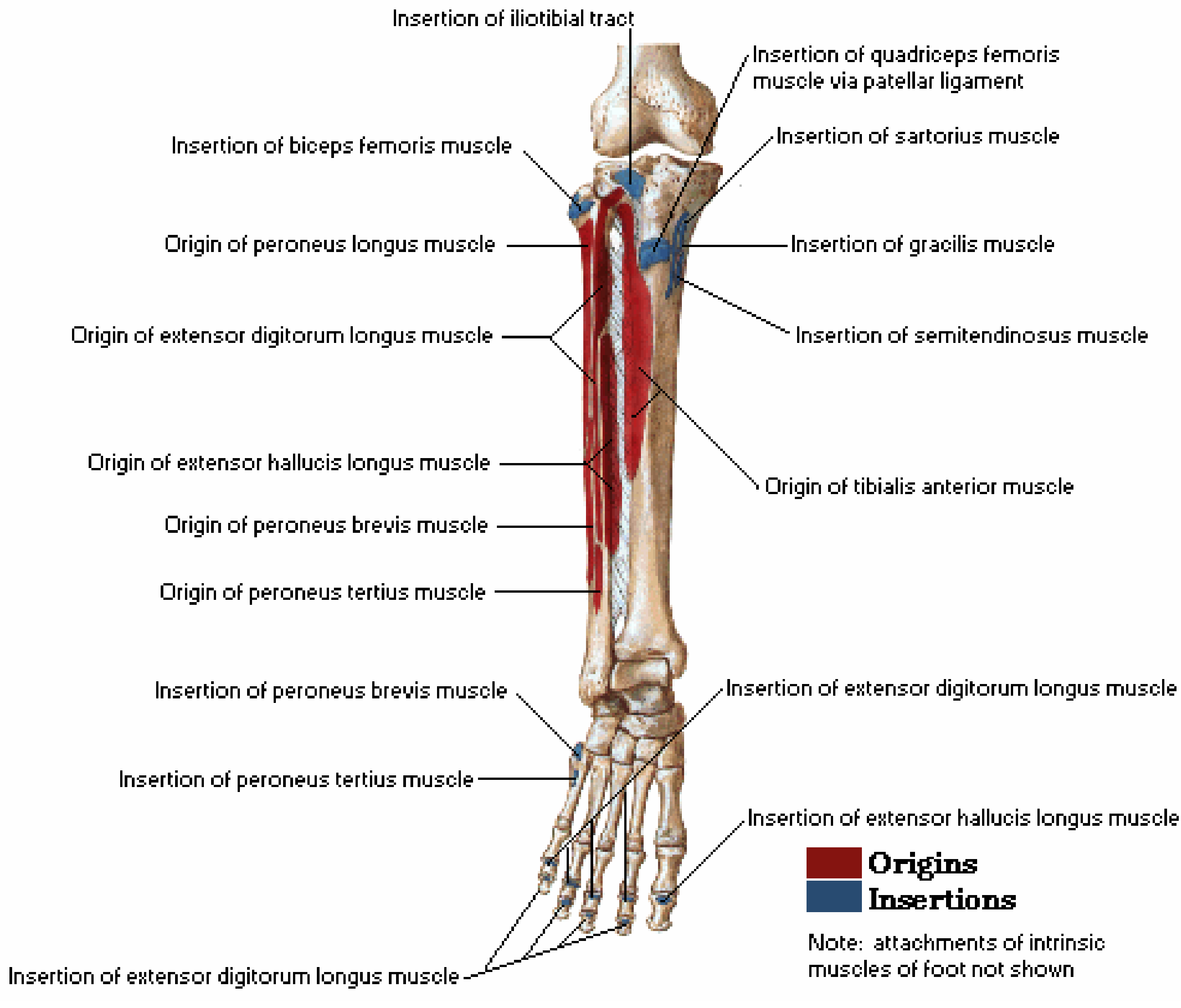
Inferior View

Anterior

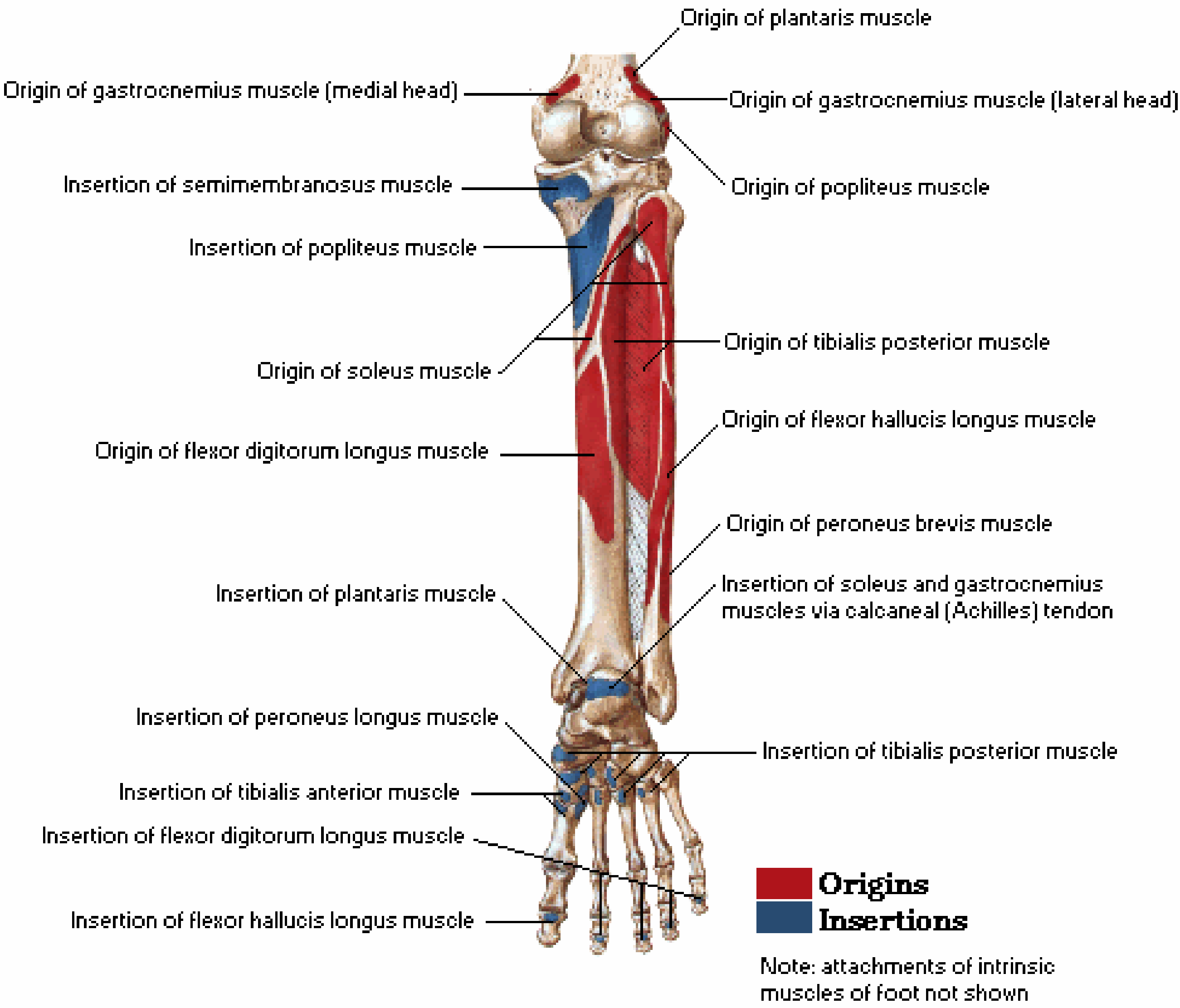


Posterior

Anterior View

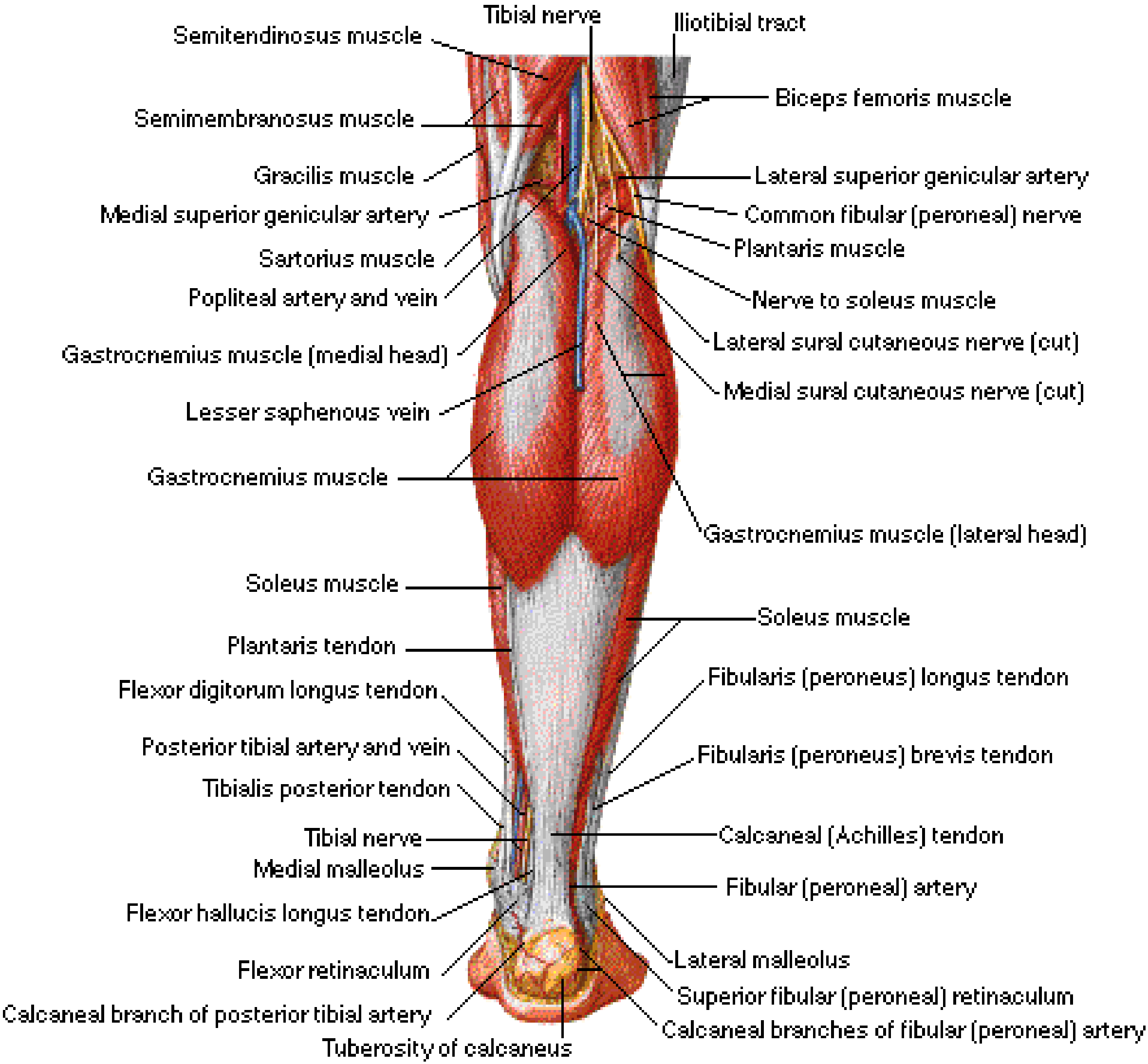


Posterior View

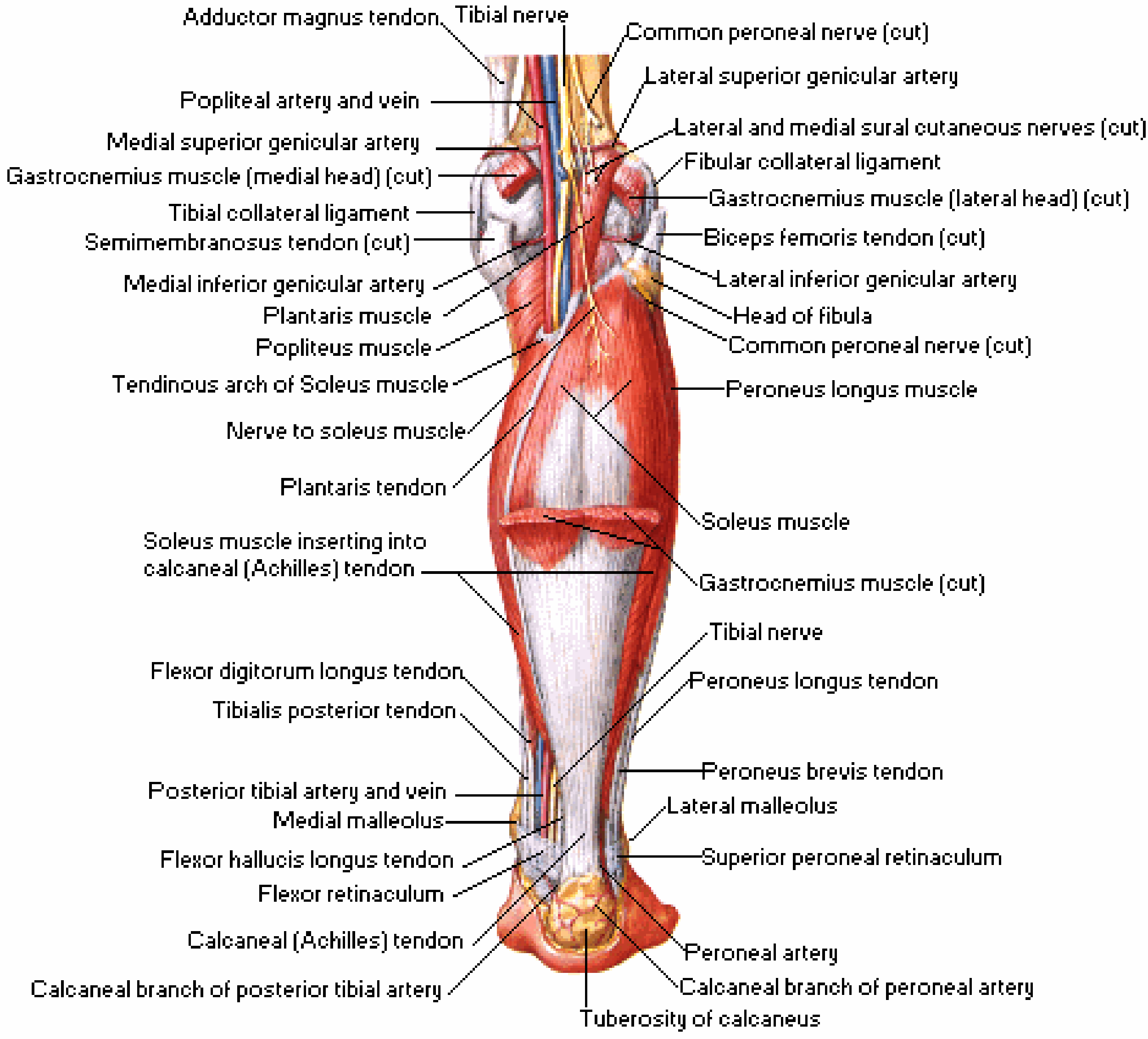


Muscles of Leg [Superficial Dissection]

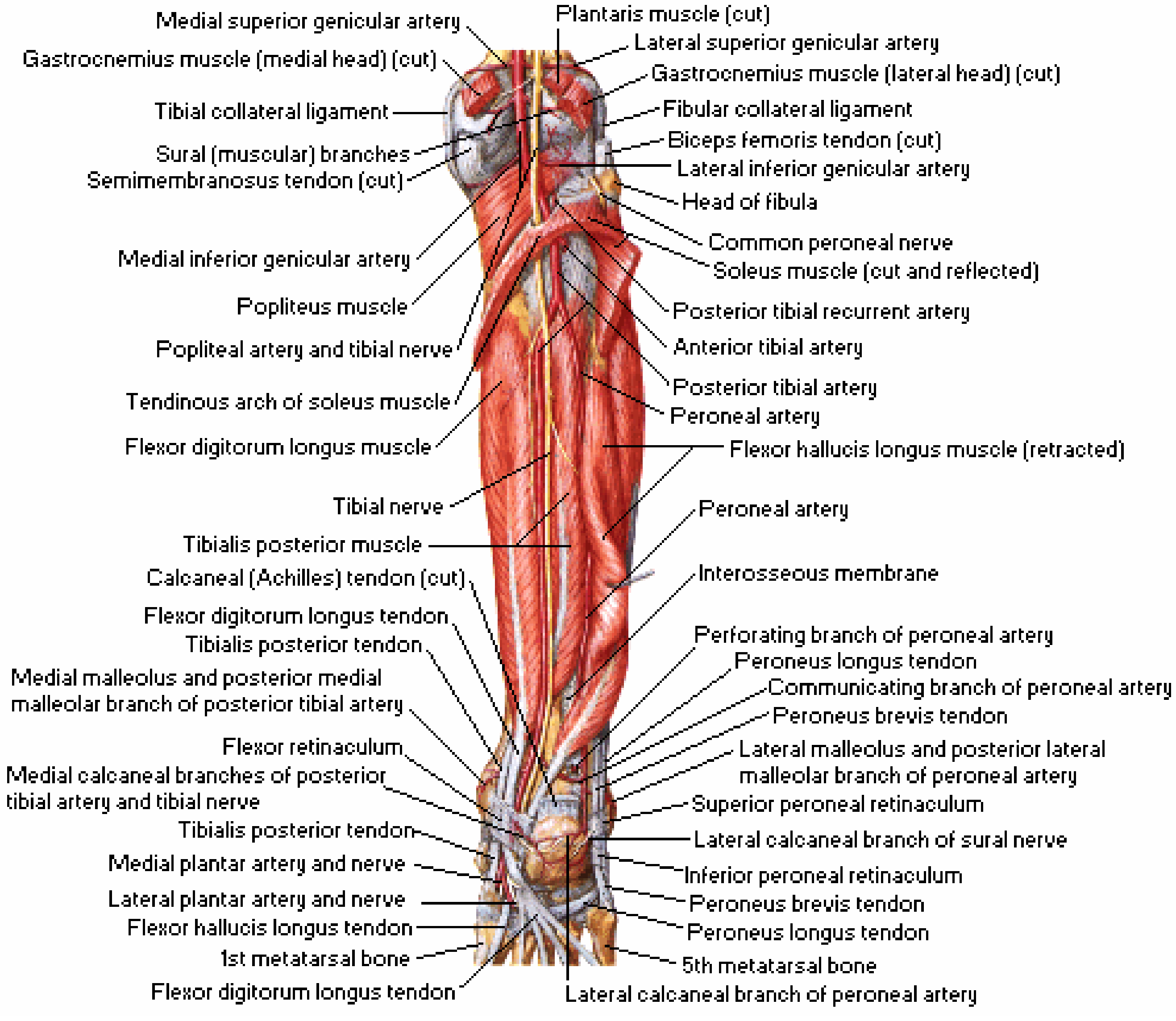
Posterior View



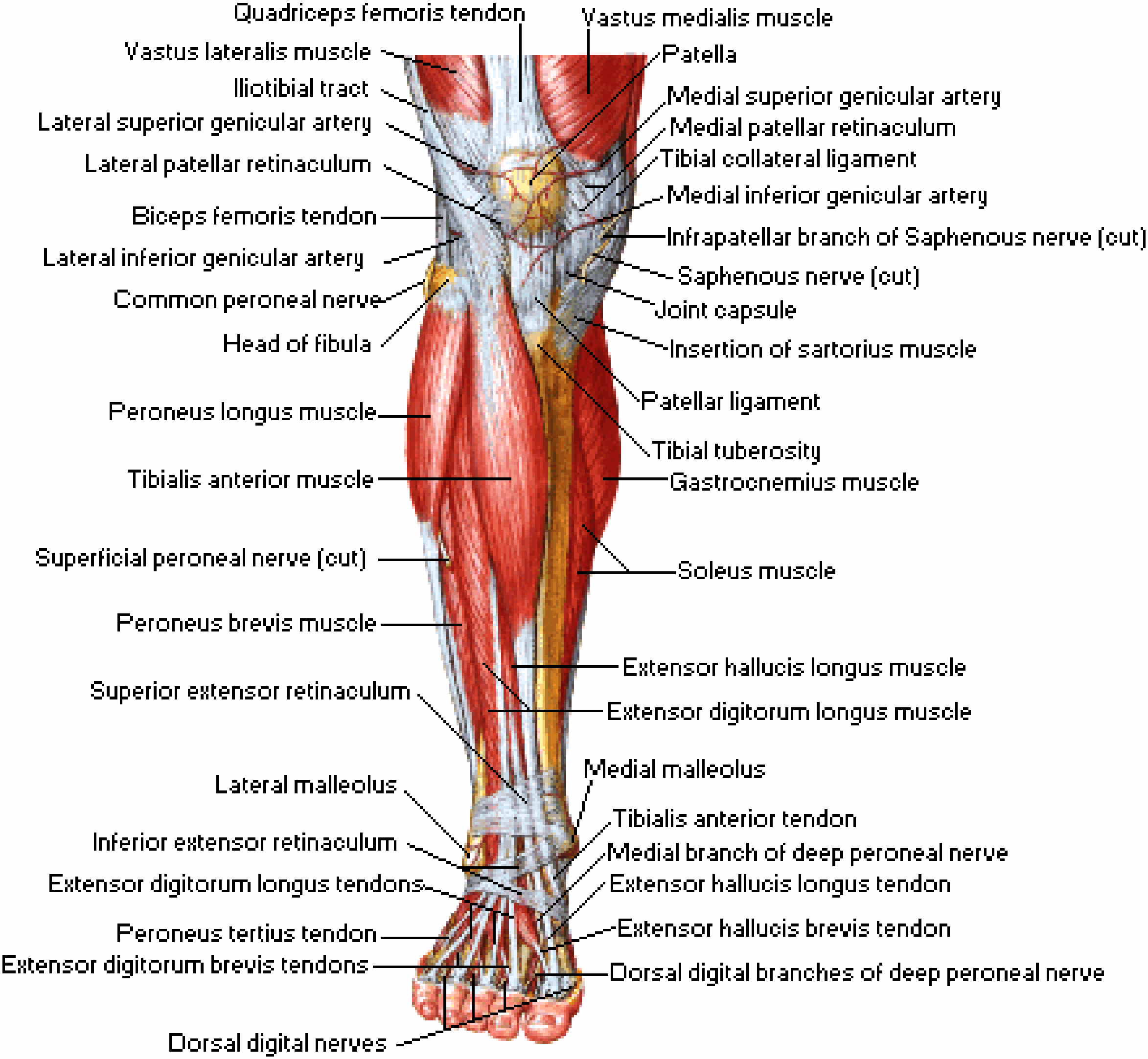
Posterior View



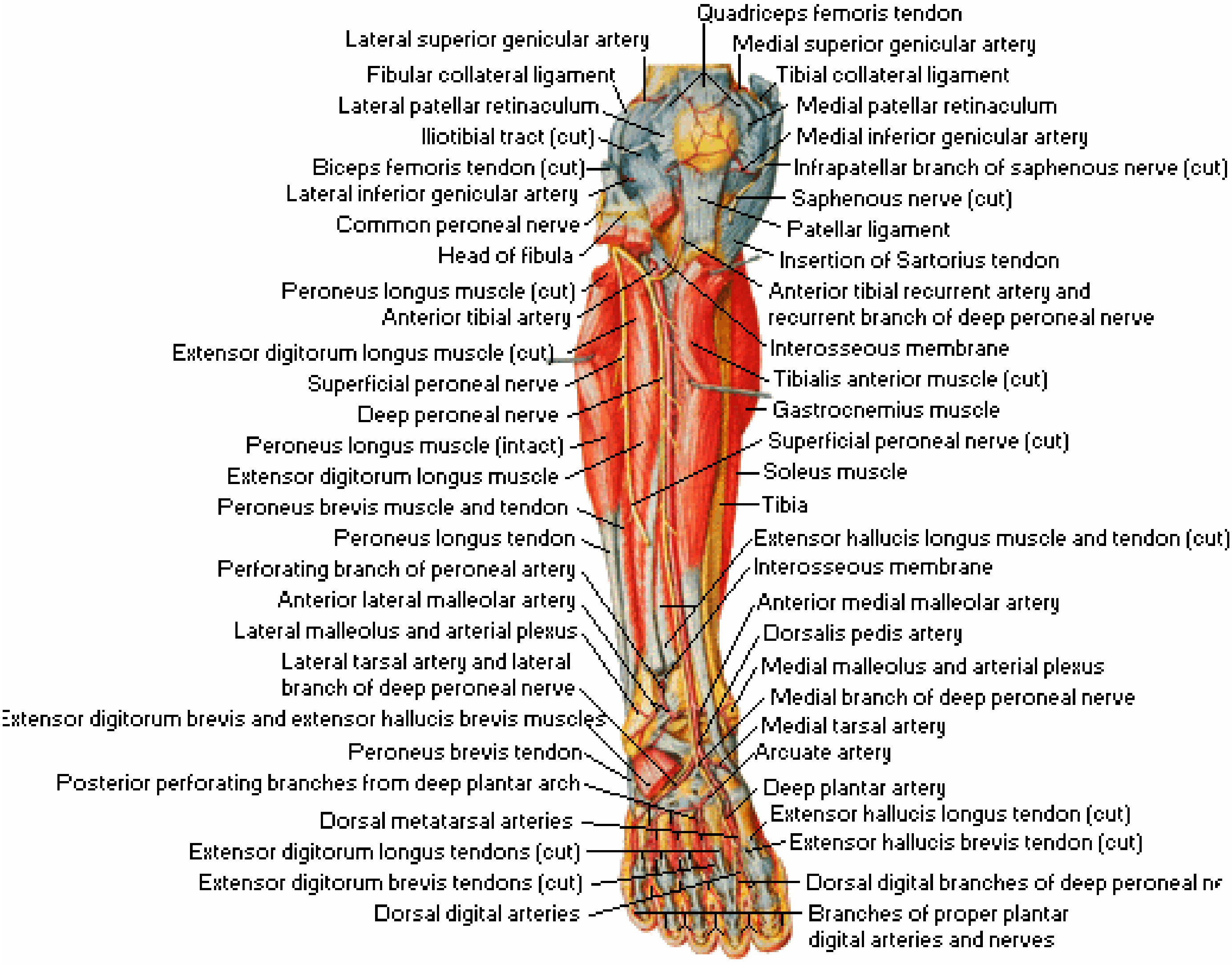
Posterior View



Anterior View

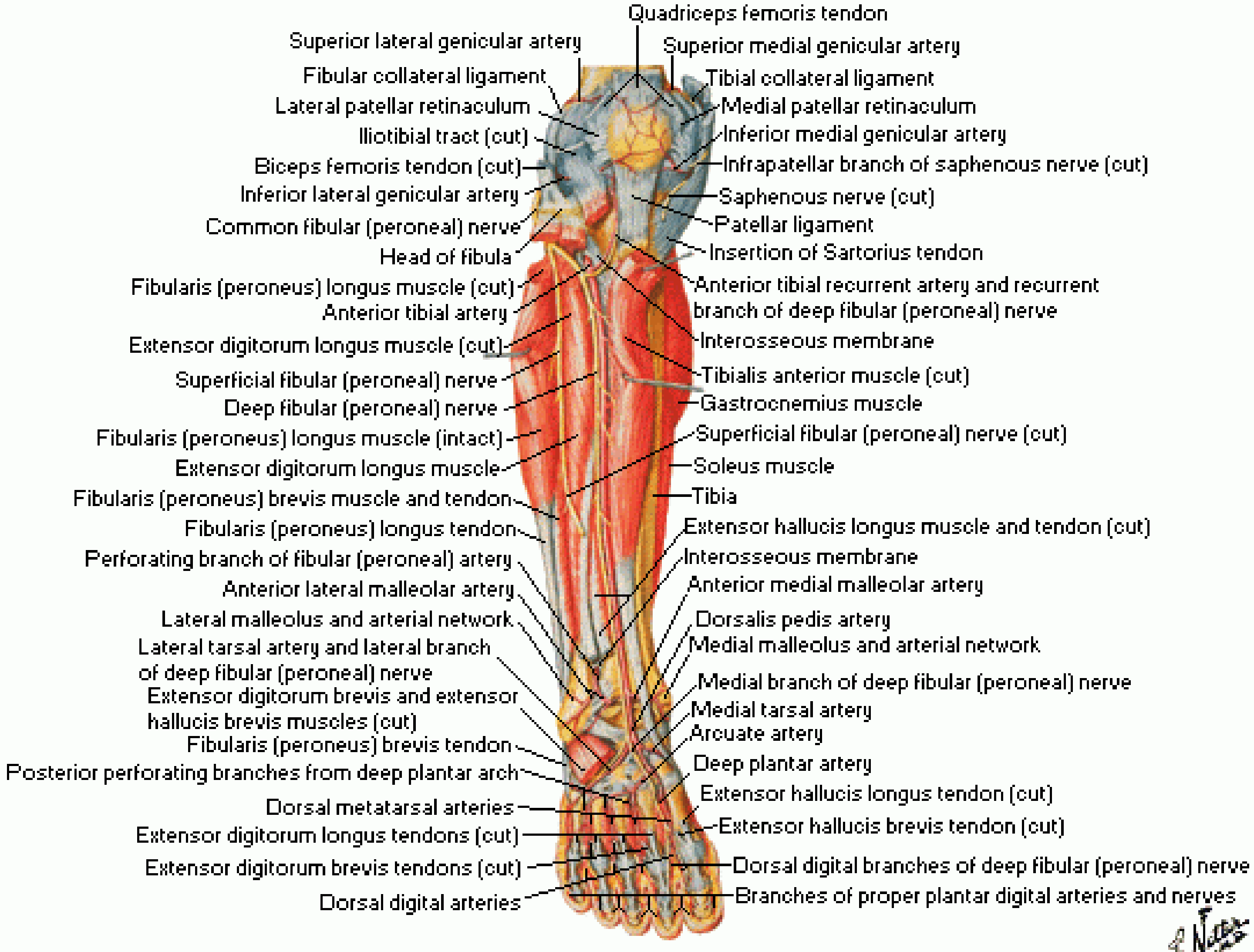


Anterior View



Muscles of Leg [Deep Dissection]

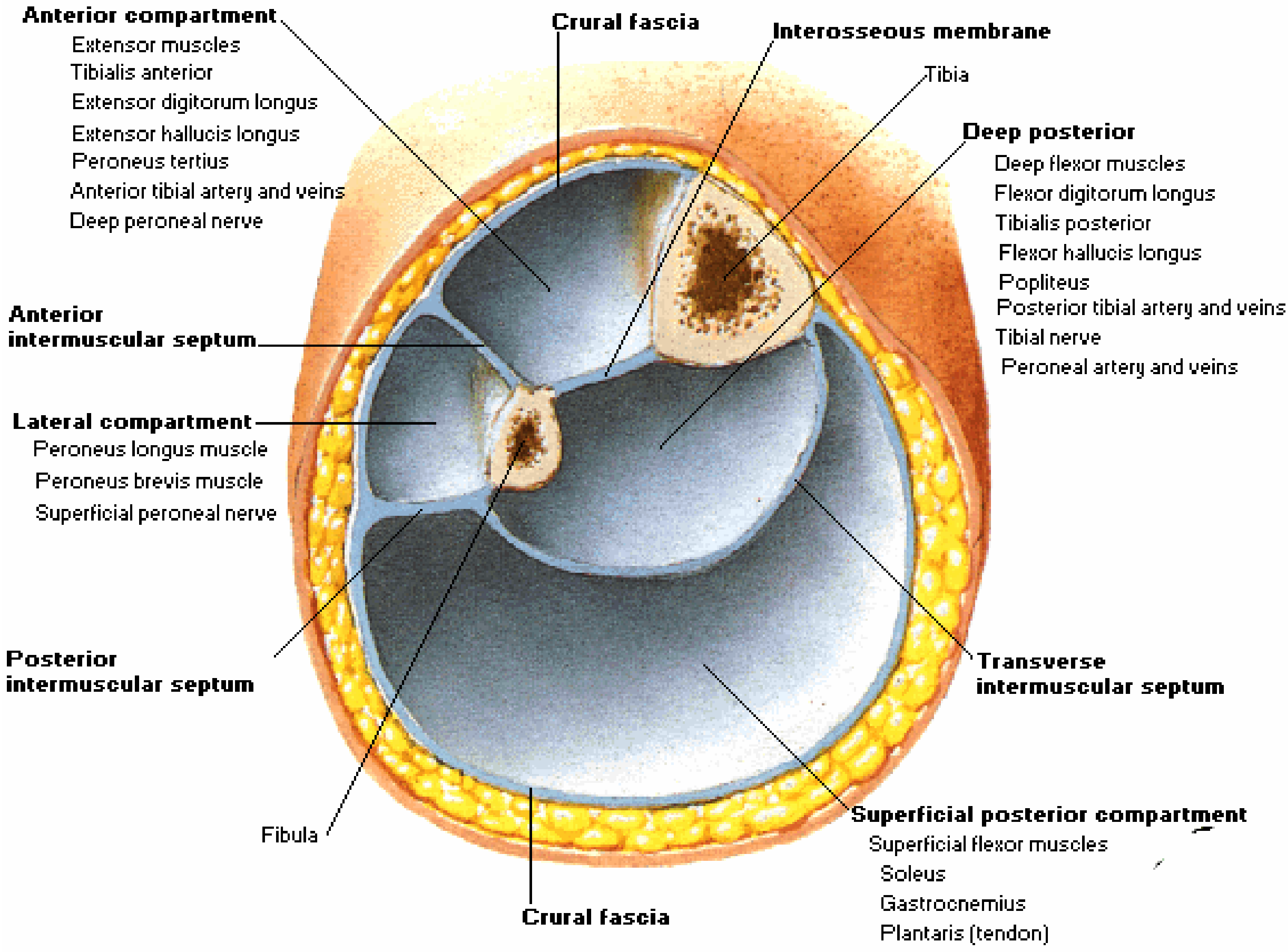
Anterior View



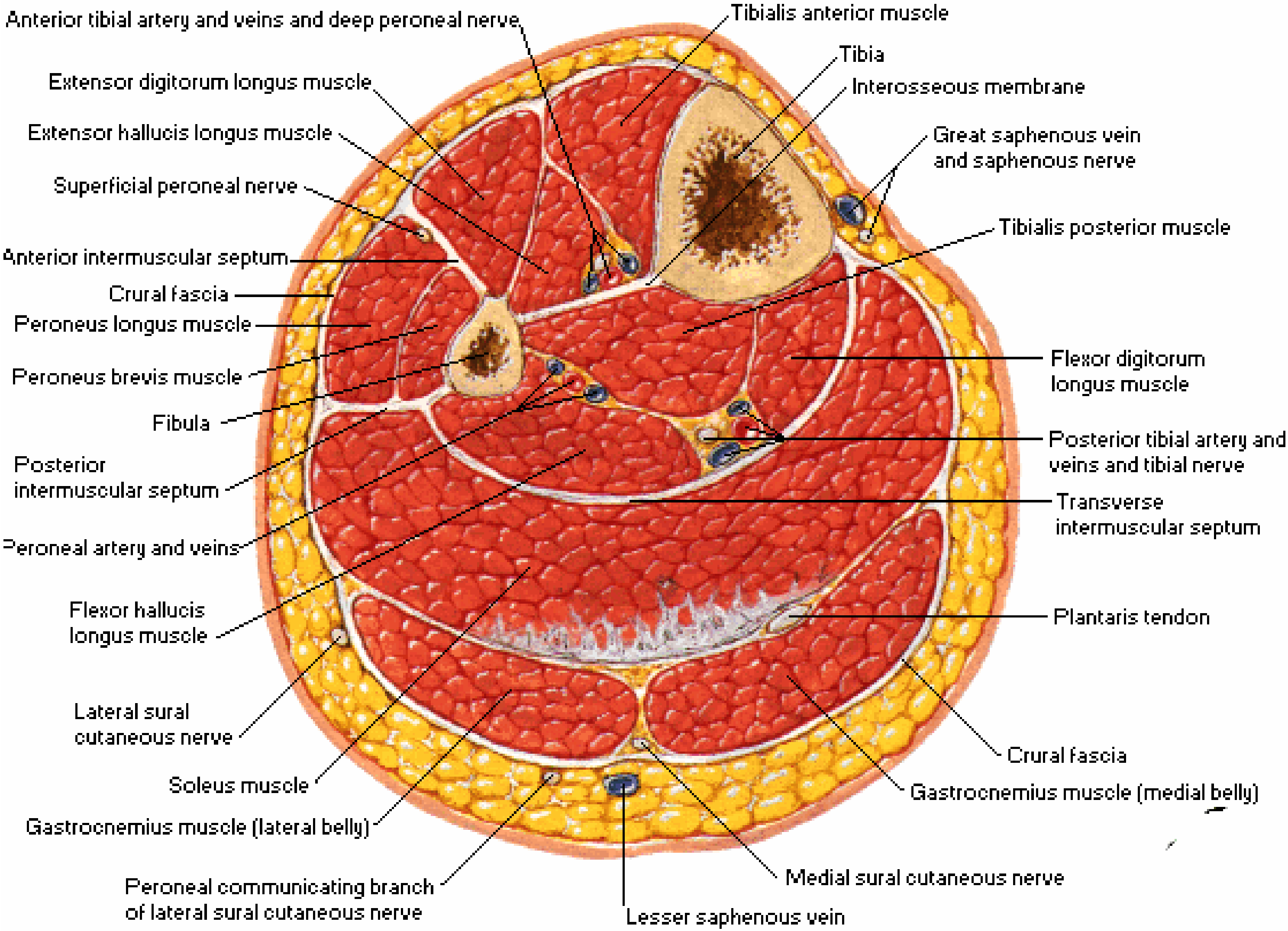
Lateral View



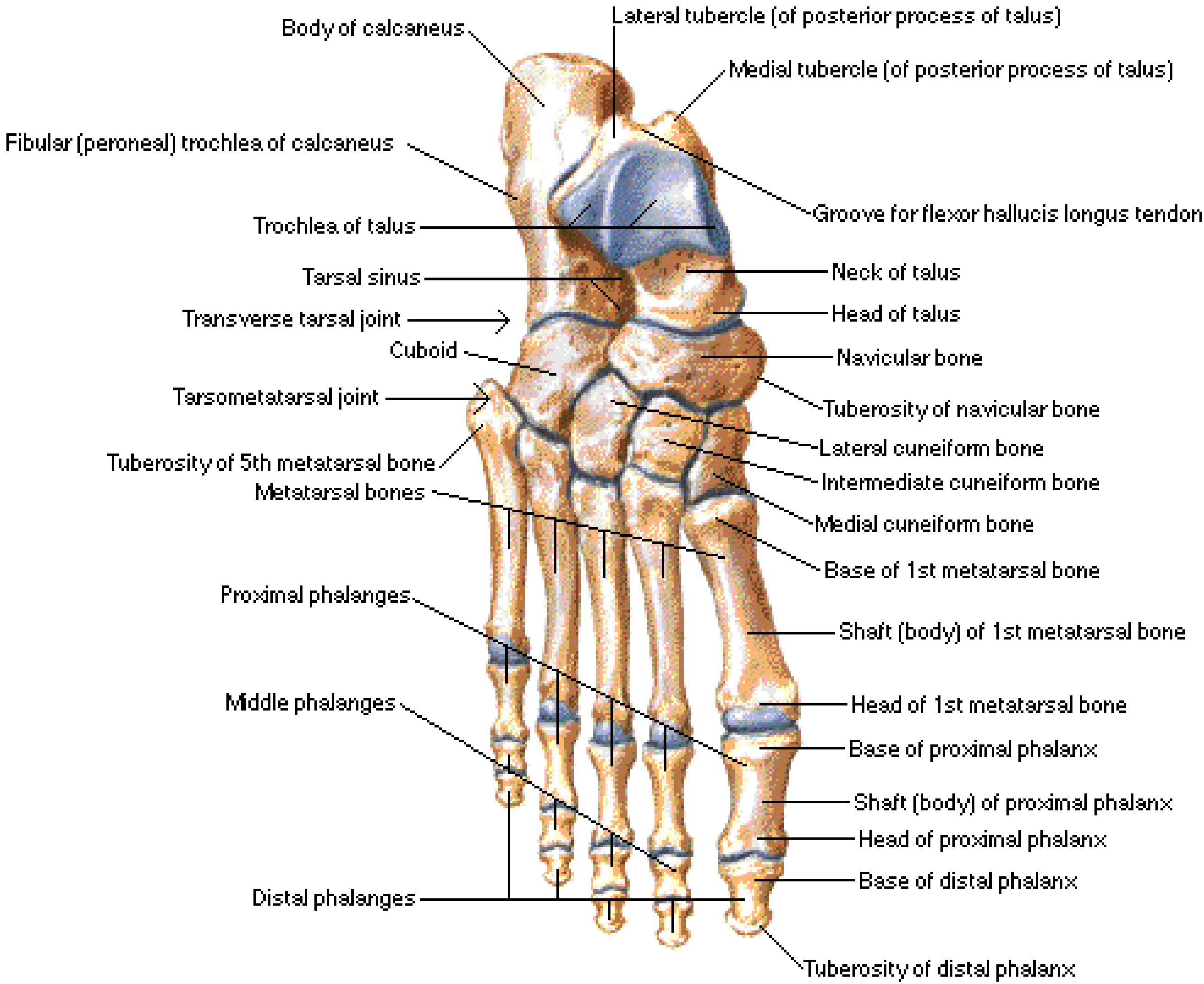
Cross Section - Fascial Compartments



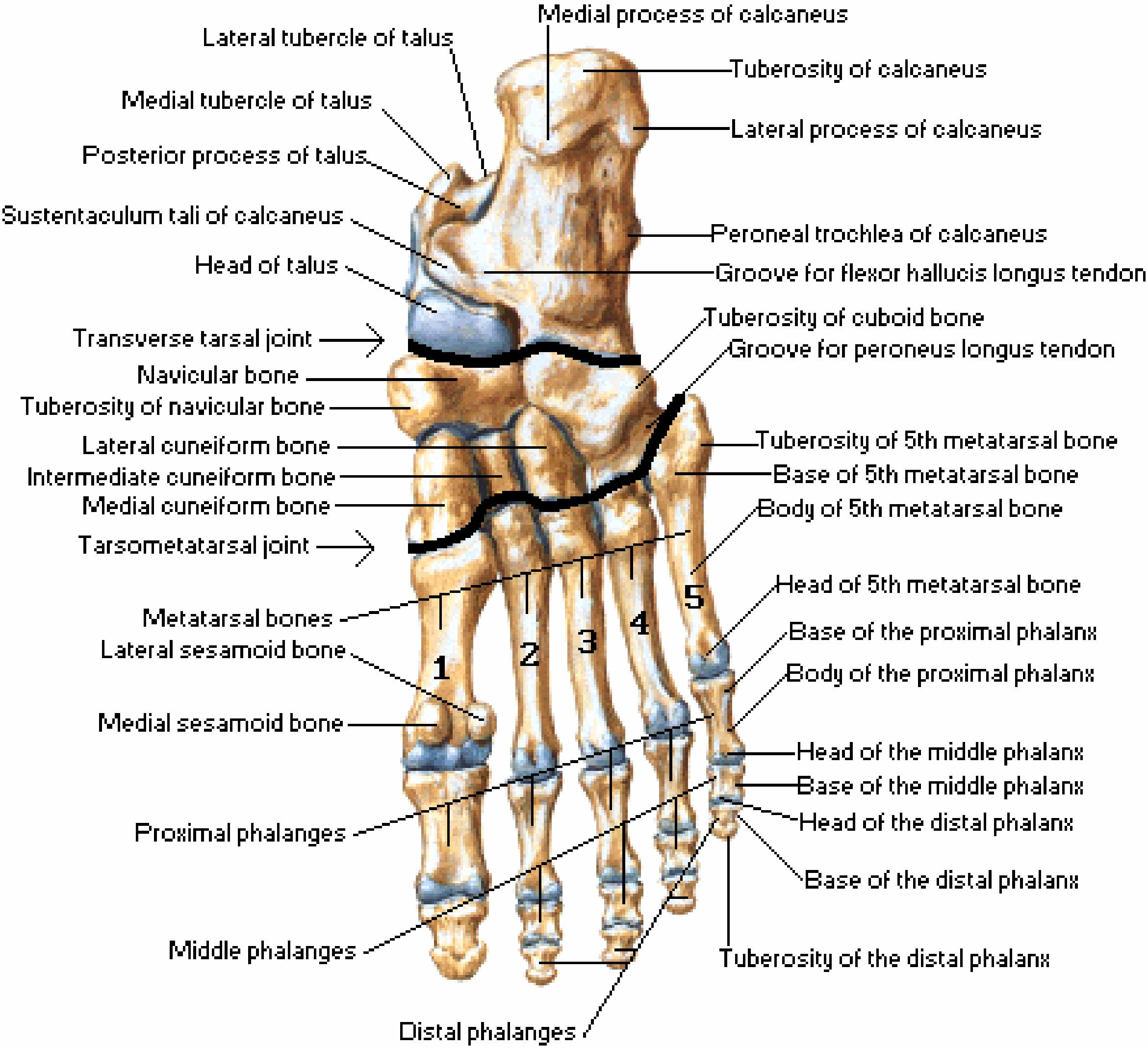
Cross Section just above Middle of Left Leg



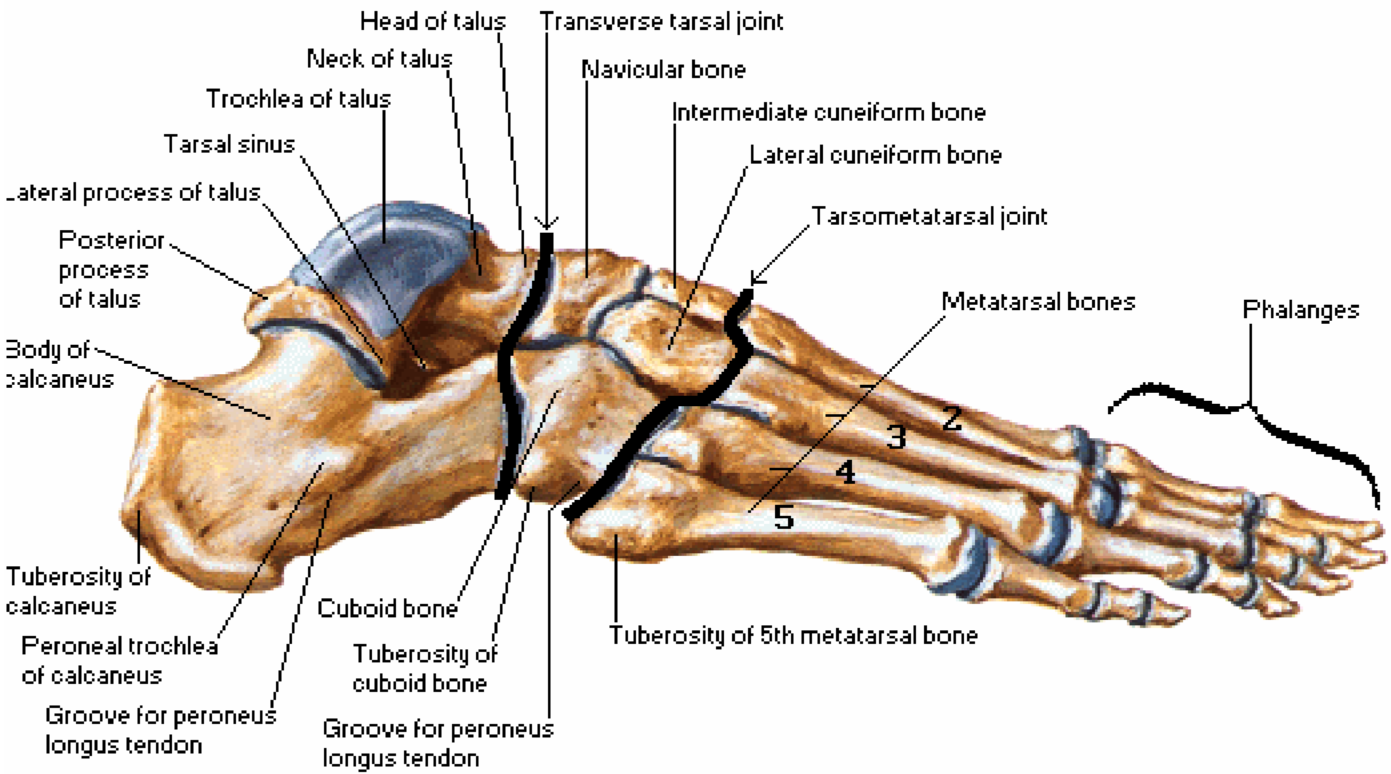
Bones of Foot
Dorsal View



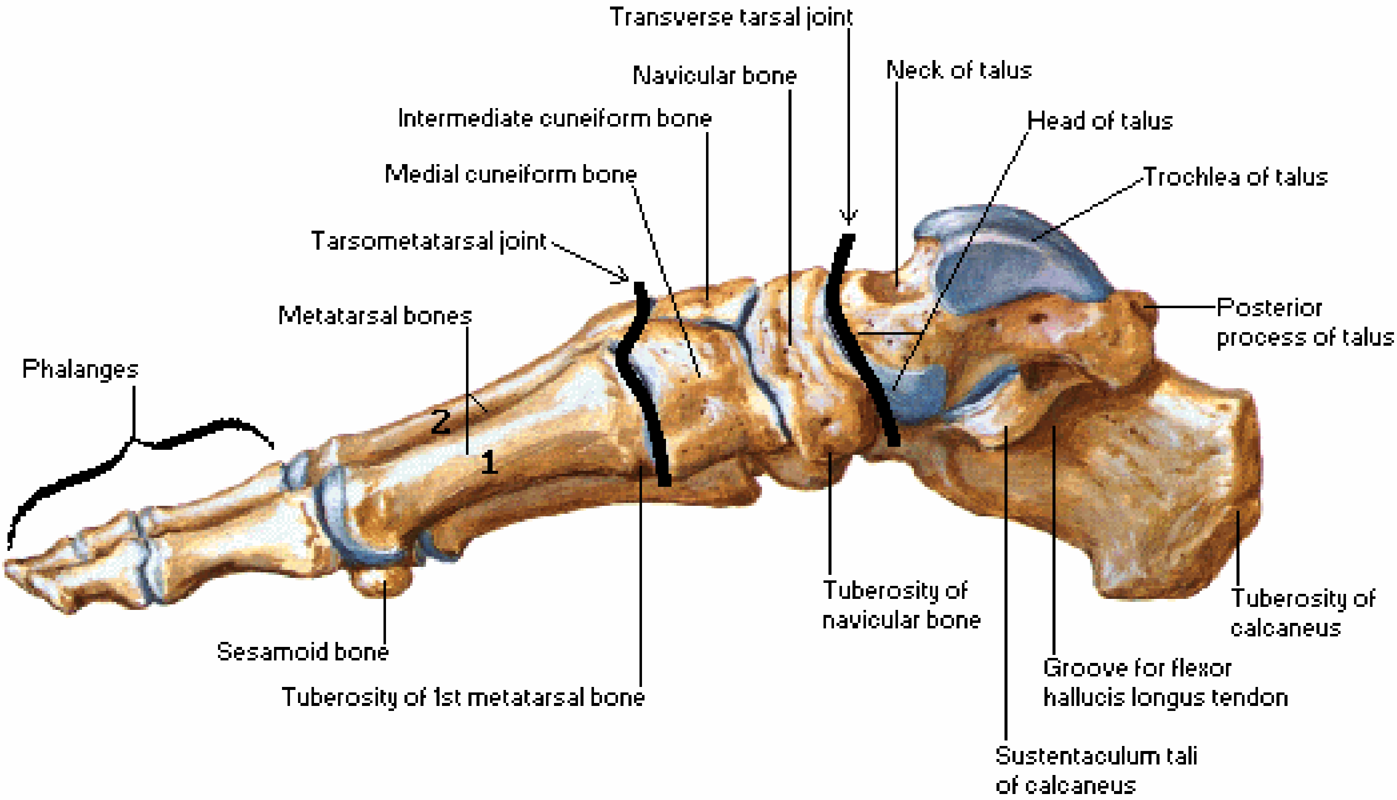
Plantar View



Lateral View

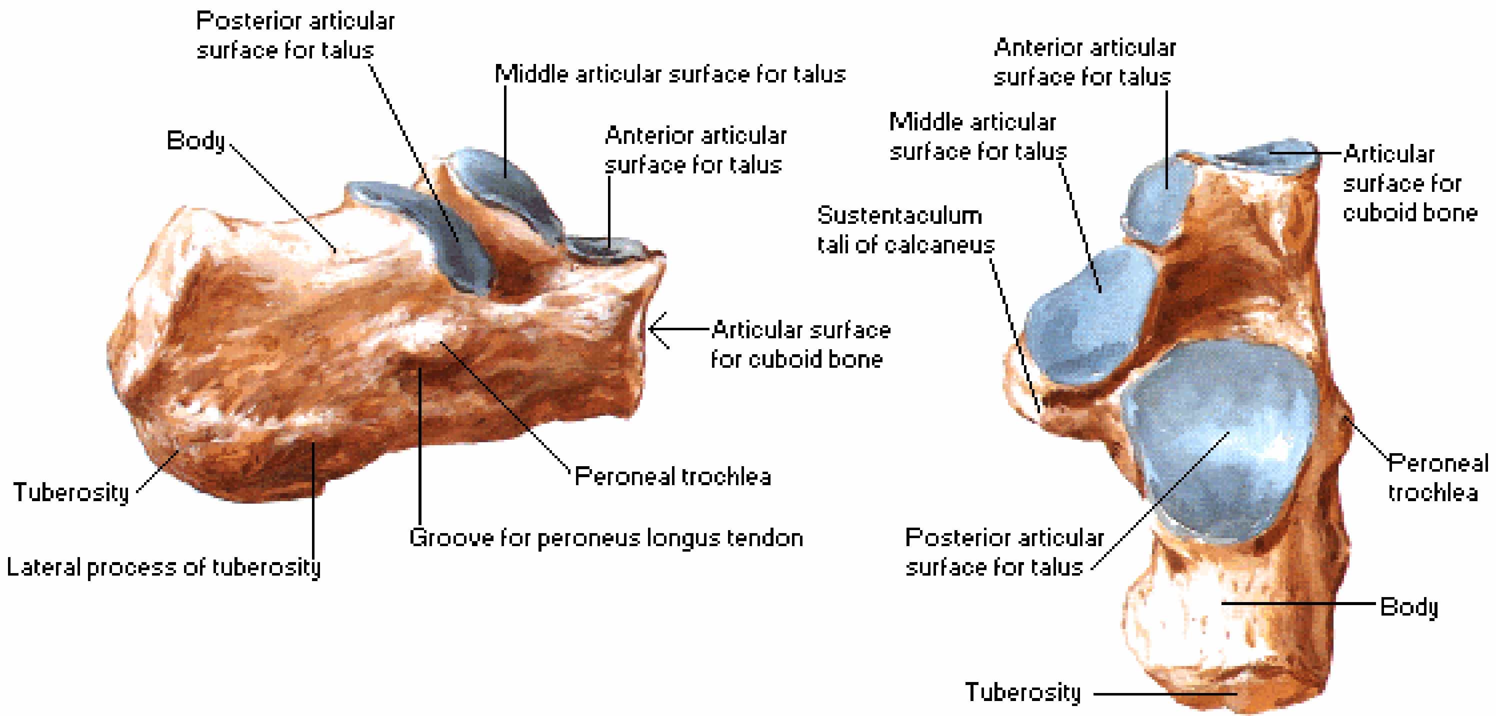


Medial View

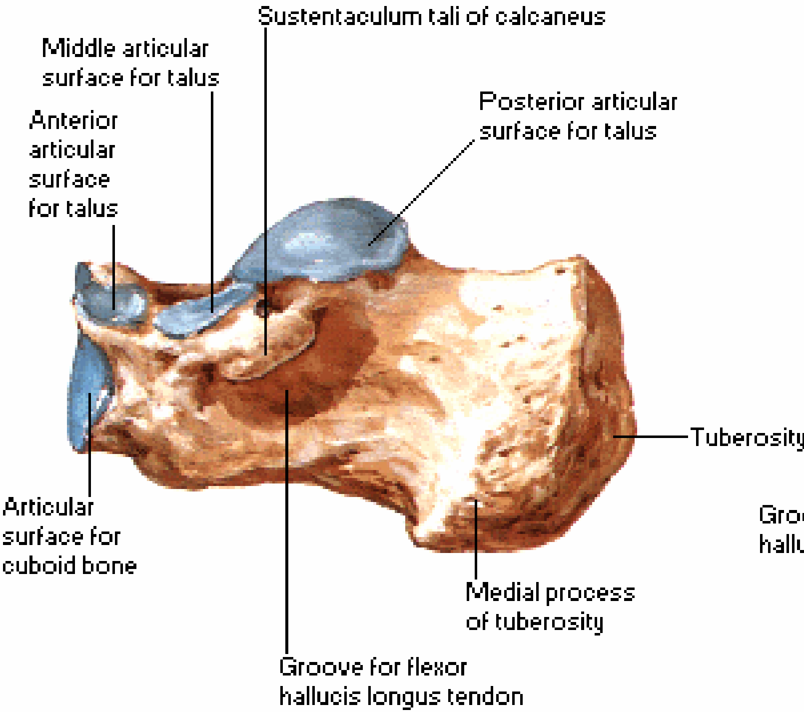


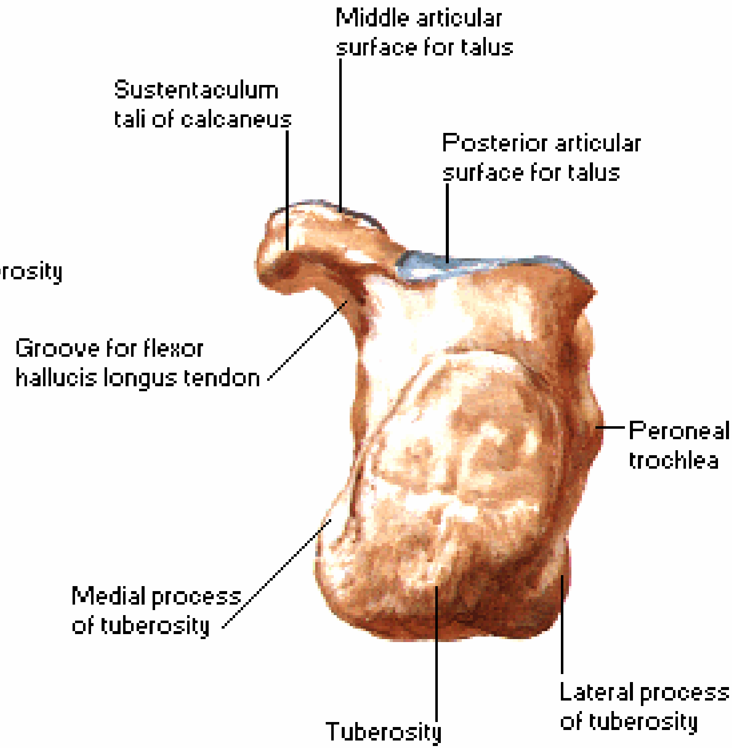
Transverse tarsal joint
Navicular bone
Neck of talus
Intermediate cuneiform bone
Head of talus
Trochlea of talus
Medial cuneiform bone
Tarsometatarsal joint
Posterior process of talus
Metatarsal bones
Phalanges
2
1
Tuberosity of navicular bone
Tuberosity of calcaneus
Sesamoid bone
Groove for flexor hallucis longus tendon
Tuberosity of 1st metatarsal bone
Sustentaculum tali of calcaneus

Lateral and Superior Views

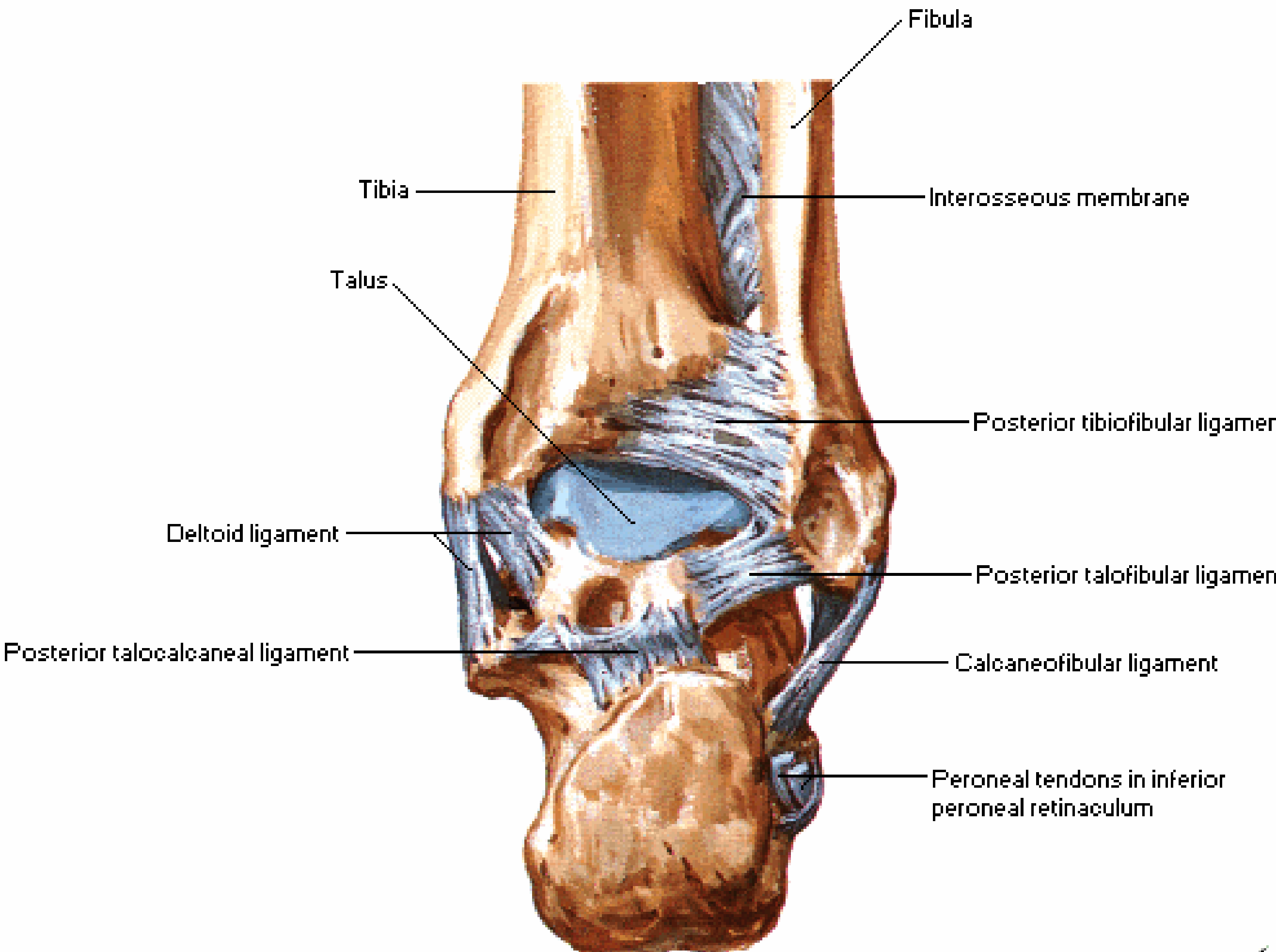


Medial and Posterior Views

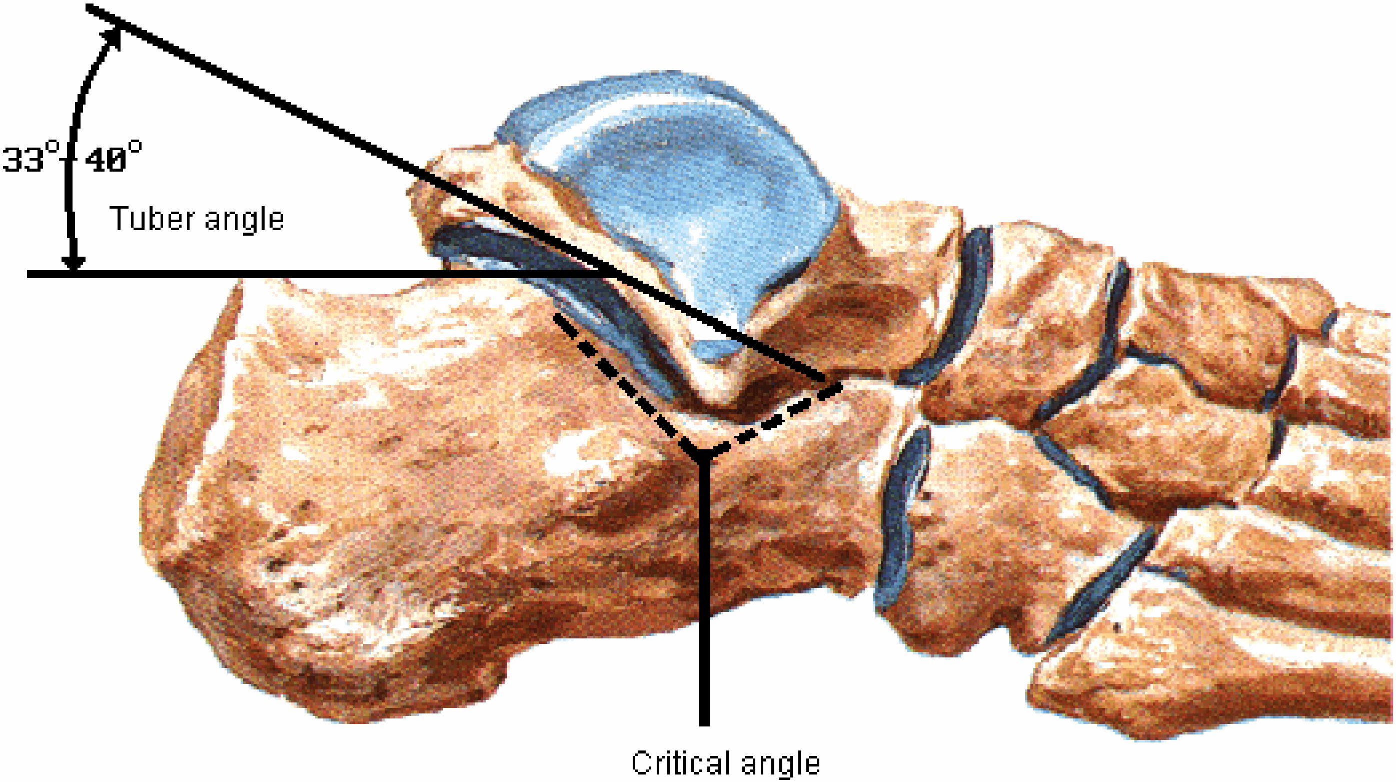




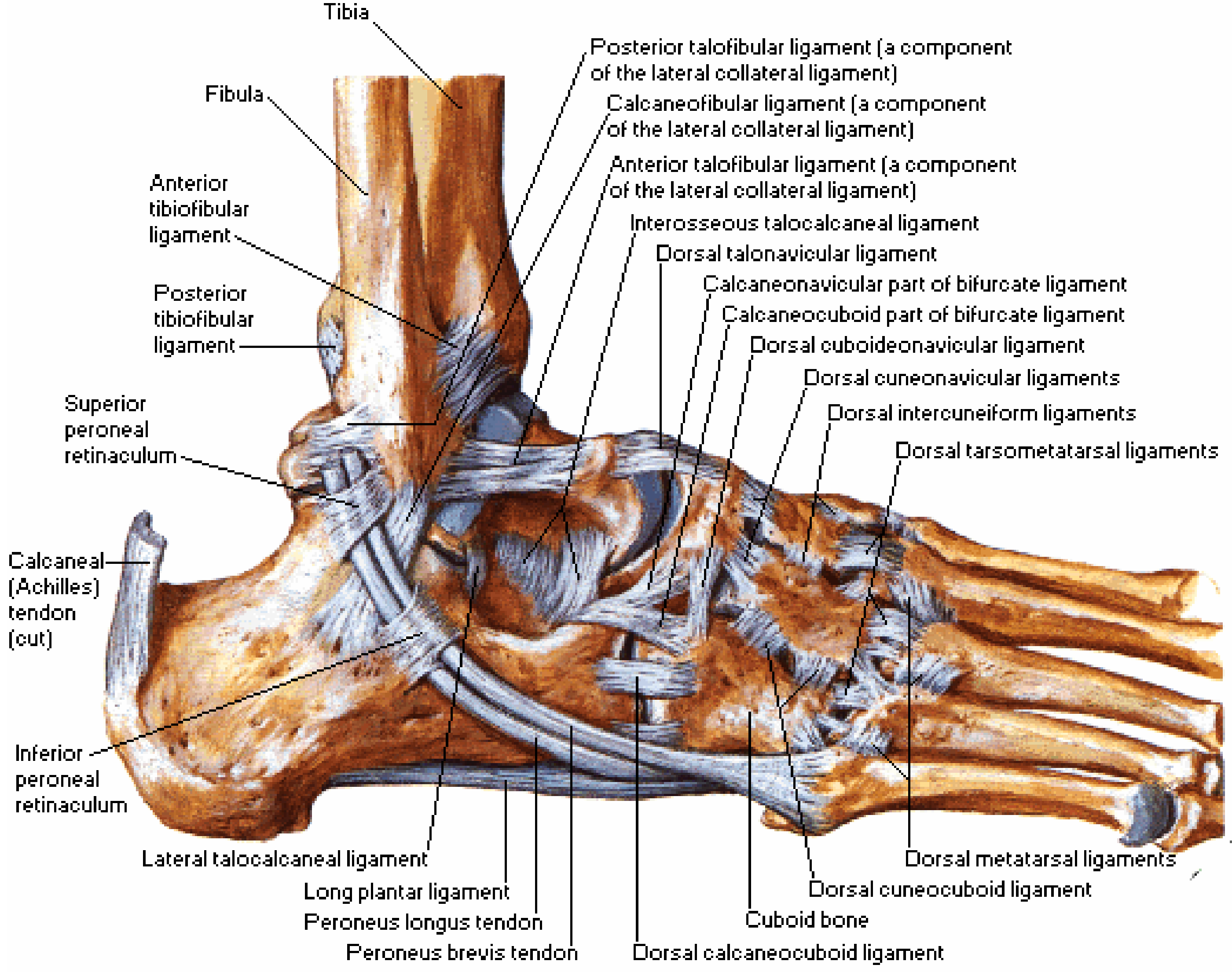
Posterior View with Ligaments



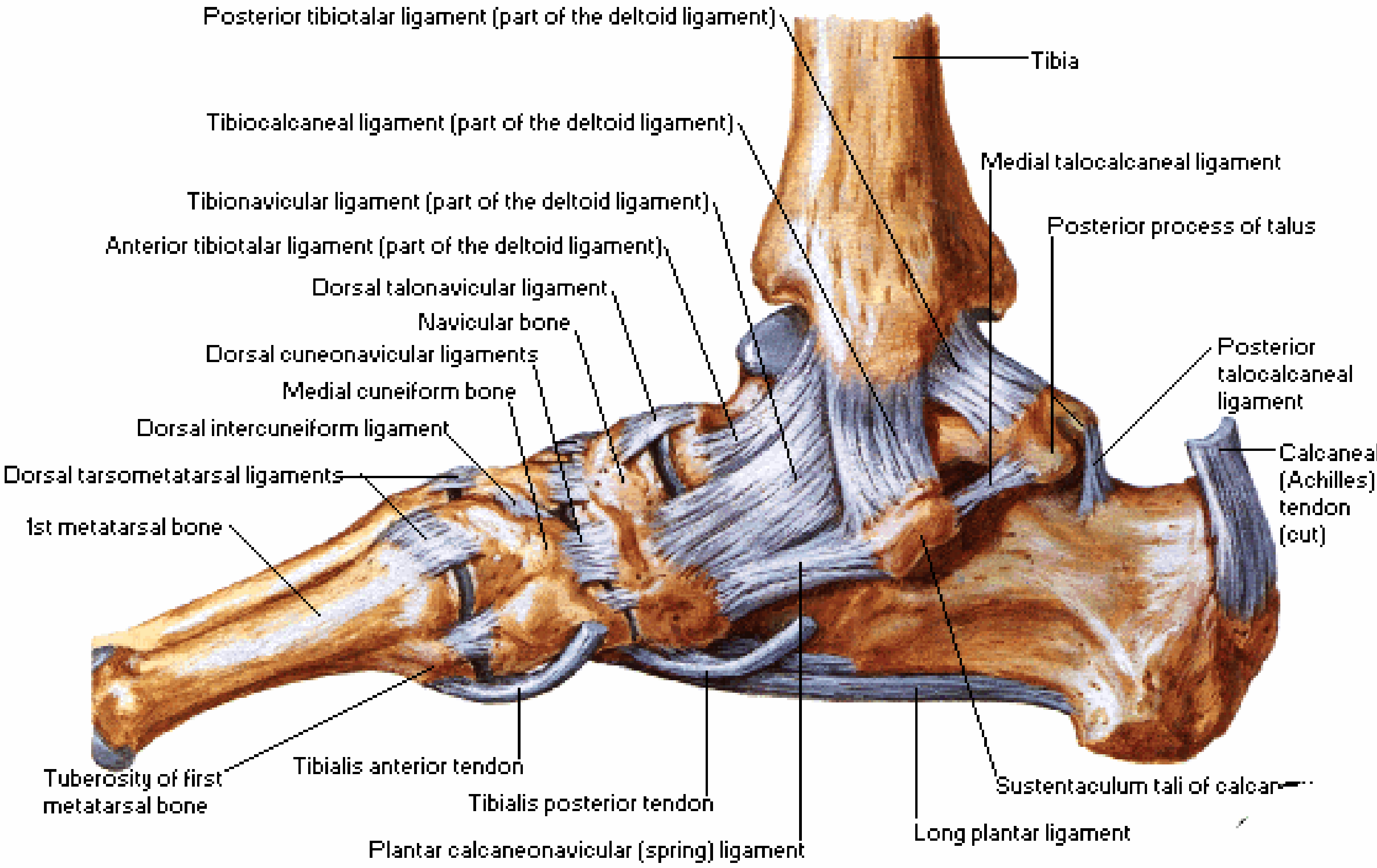
Functional Relations of Calcaneus



Lateral View

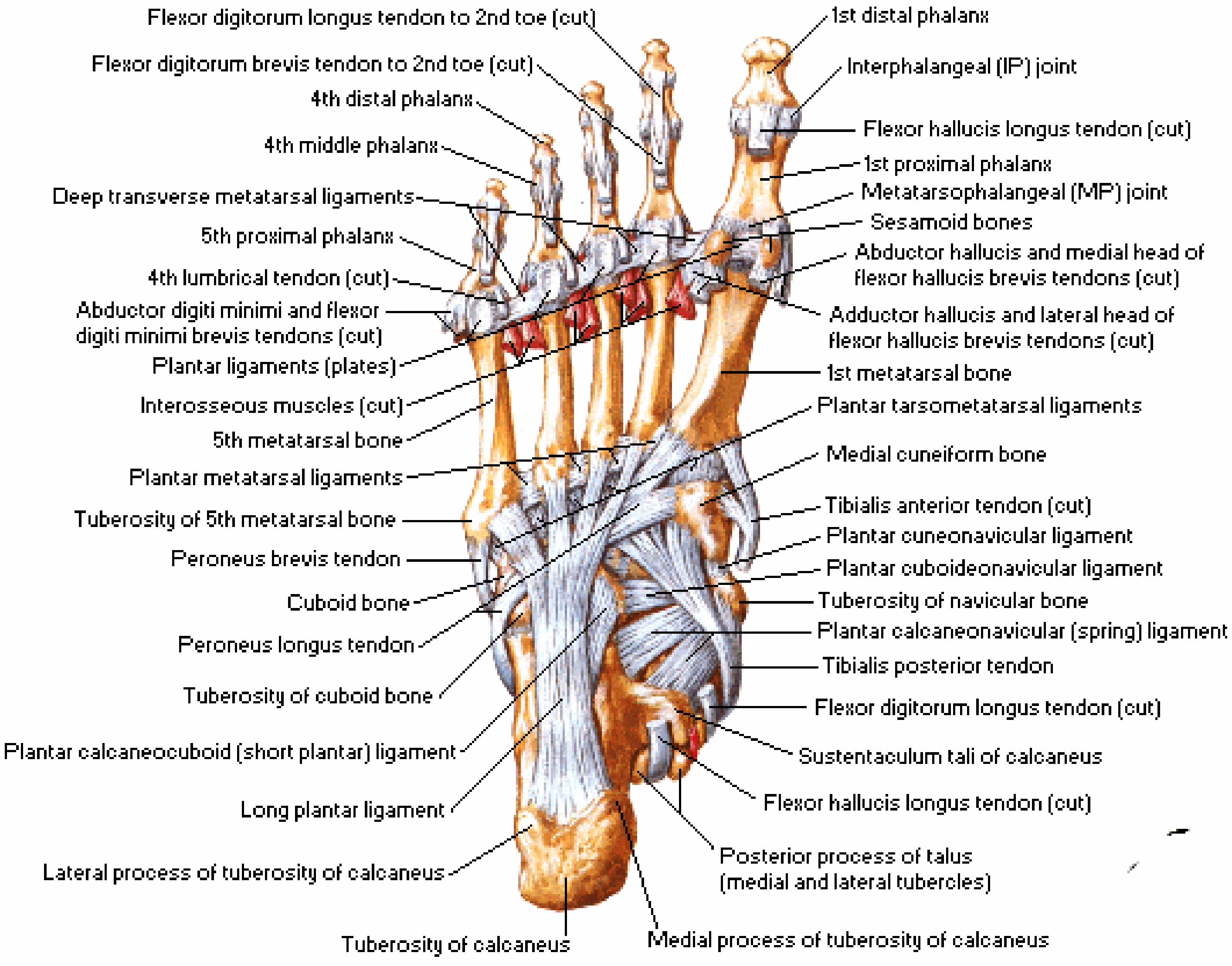


Medial View

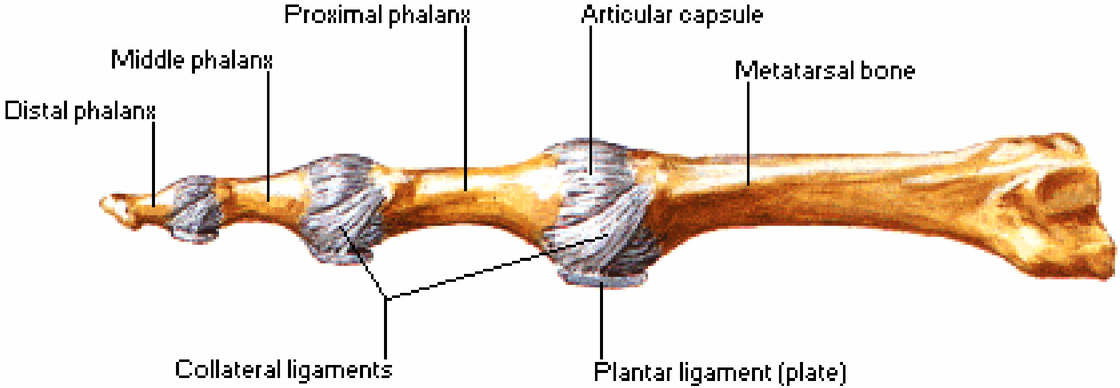


Posterior tibiotalar ligament (part of the deltoid ligament)
Tibia
Tibiocalcaneal ligament (part of the deltoid ligament)
Medial talocalcaneal ligament
Tibionavicular ligament (part of the deltoid ligament)
Posterior process of talus
Anterior tibiotalar ligament (part of the deltoid ligament)
Dorsal talonavicular ligament
Navicular bone
Posterior talocalcaneal ligament
Dorsal cuneonavicular ligaments
Medial cuneiform bone
Dorsal intercuneiform ligament
Calcaneal (Achilles) tendon (cut)
Dorsal tarsometatarsal ligaments
1st metatarsal bone
Tuberosity of first metatarsal bone
Tibialis anterior tendon
Tibialis posterior tendon
Sustentaculum tali of calcan
Long plantar ligament
Plantar calcaneonavicular (spring) ligament

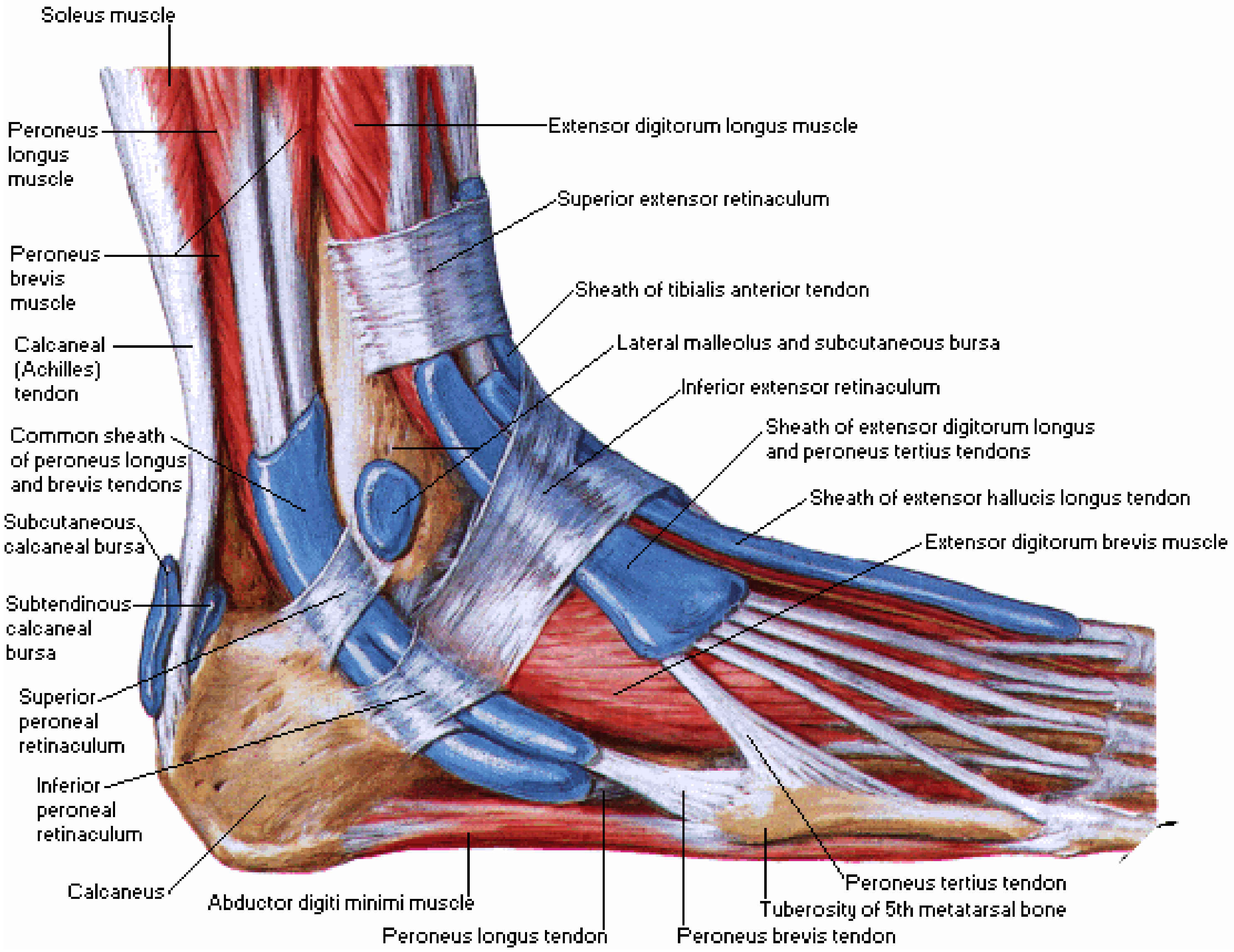
Plantar View



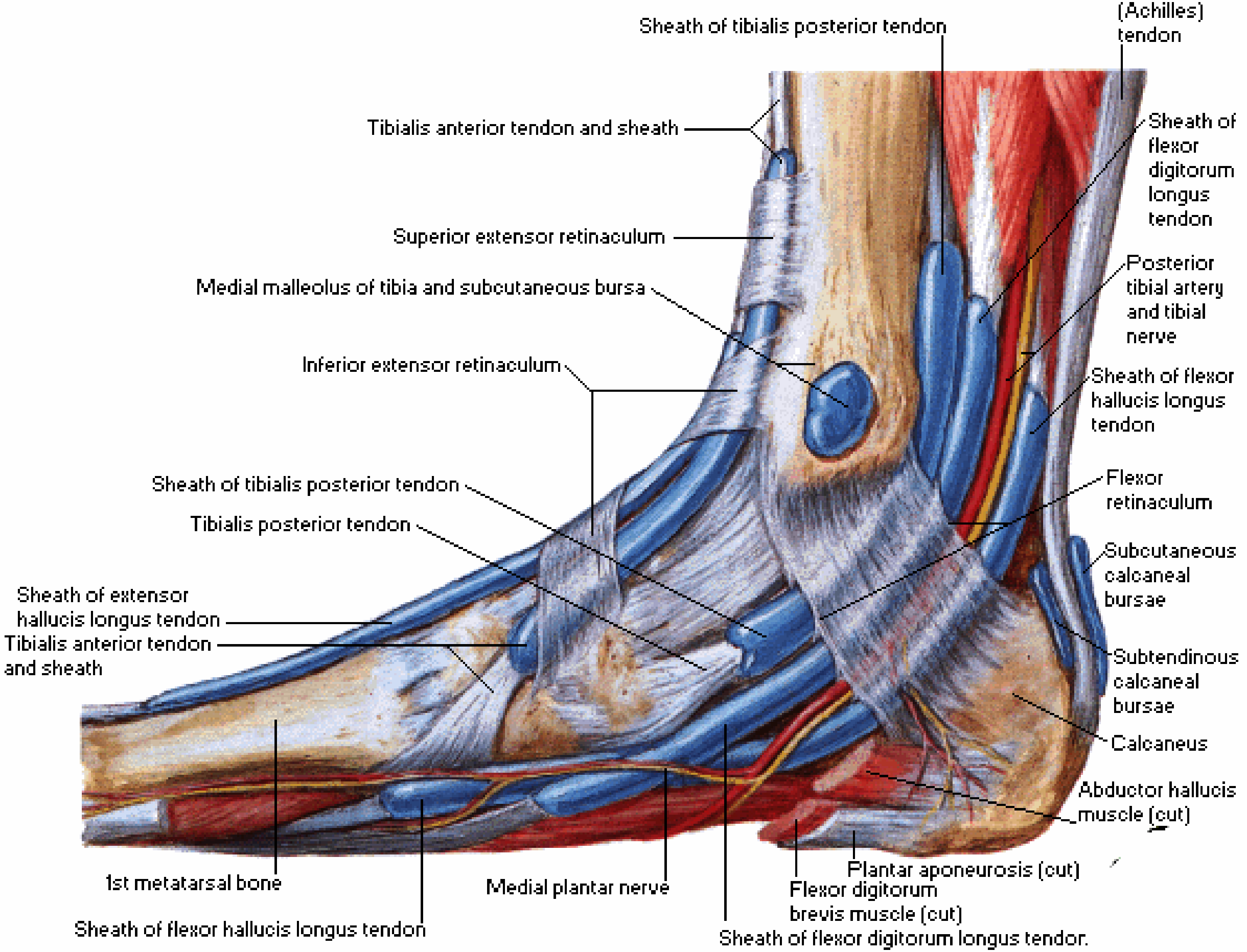
Lateral View



Lateral View



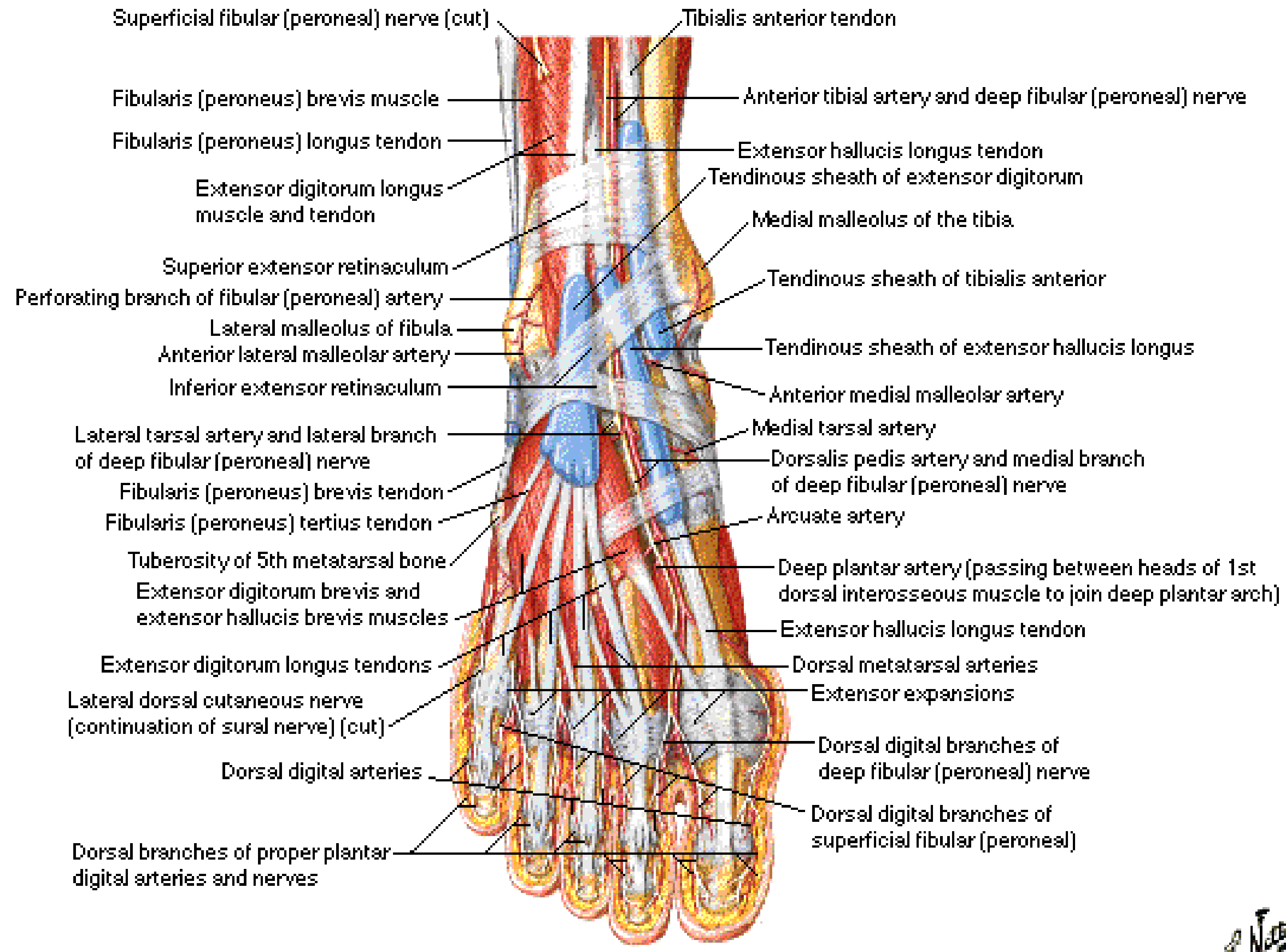
Medial View



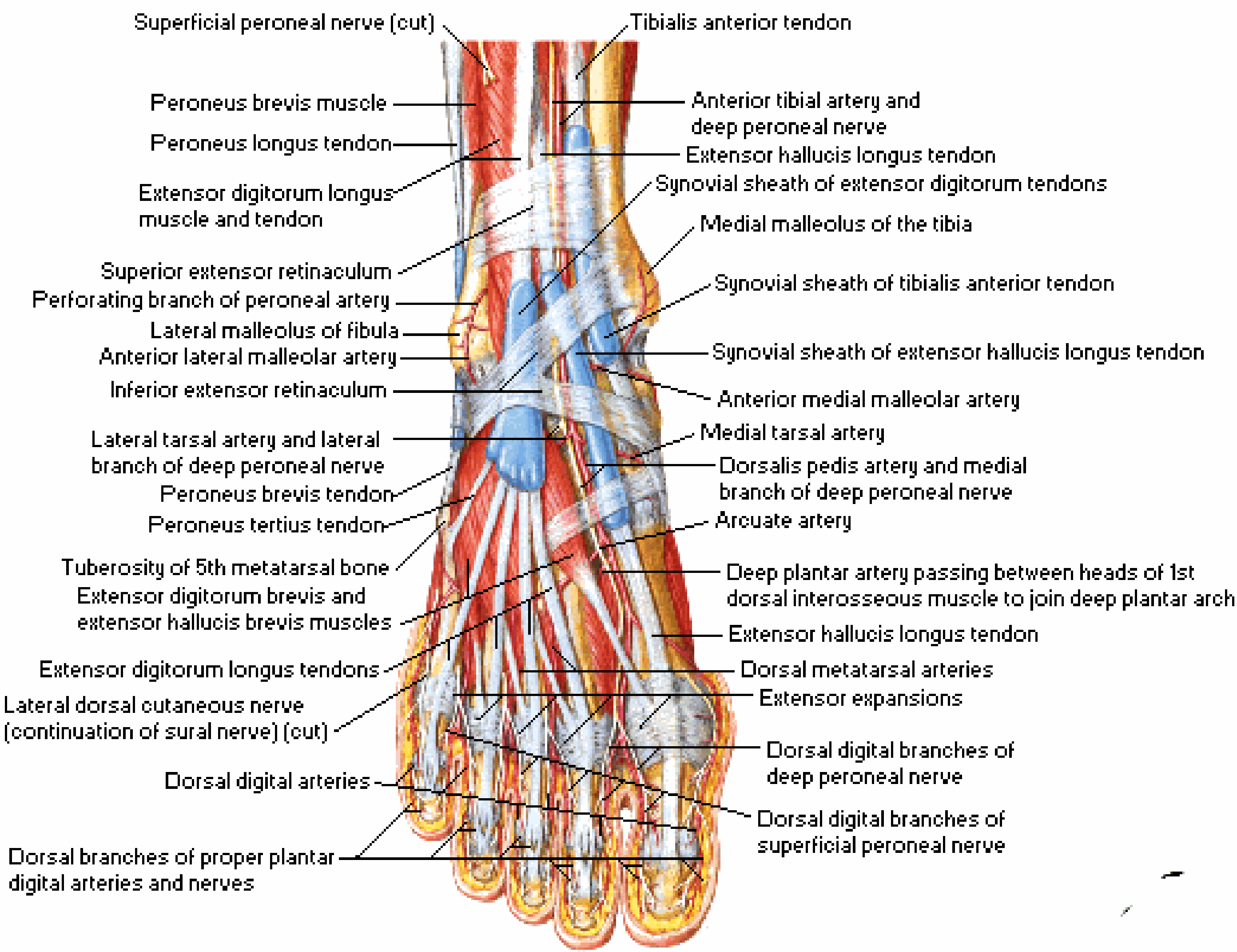
Calcaneal (Achilles) tendon
Sheath of tibialis posterior tendon
Tibialis anterior tendon and sheath
Sheath of flexor digitorum longus tendon
Superior extensor retinaculum
Posterior tibial artery and tibial nerve
Medial malleolus of tibia and subcutaneous bursa
Inferior extensor retinaculum
Sheath of flexor hallucis longus tendon
Flexor retinaculum
Sheath of tibialis posterior tendon
Tibialis posterior tendon
Subcutaneous calcaneal bursae
Sheath of extensor hallucis longus tendon
Tibialis anterior tendon and sheath
Subtendinous calcaneal bursae
Calcaneus
Abductor hallucis muscle (cut)
Plantar aponeurosis (cut)
1st metatarsal bone
Medial plantar nerve
Flexor digitorum brevis muscle (cut)
Sheath of flexor hallucis longus tendon
Sheath of flexor digitorum longus tendon

Muscles of Dorsum of Foot

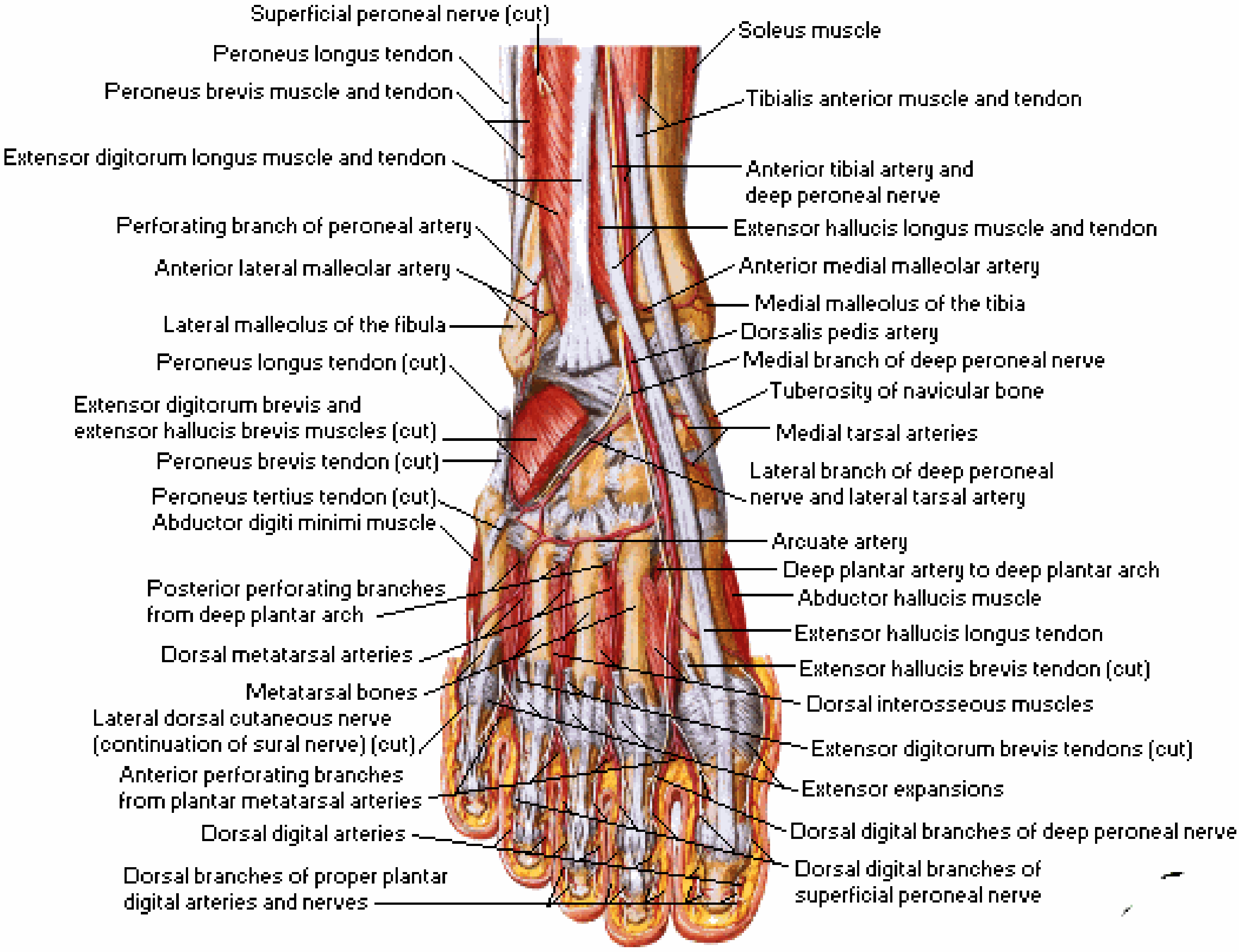
Superficial Dissection



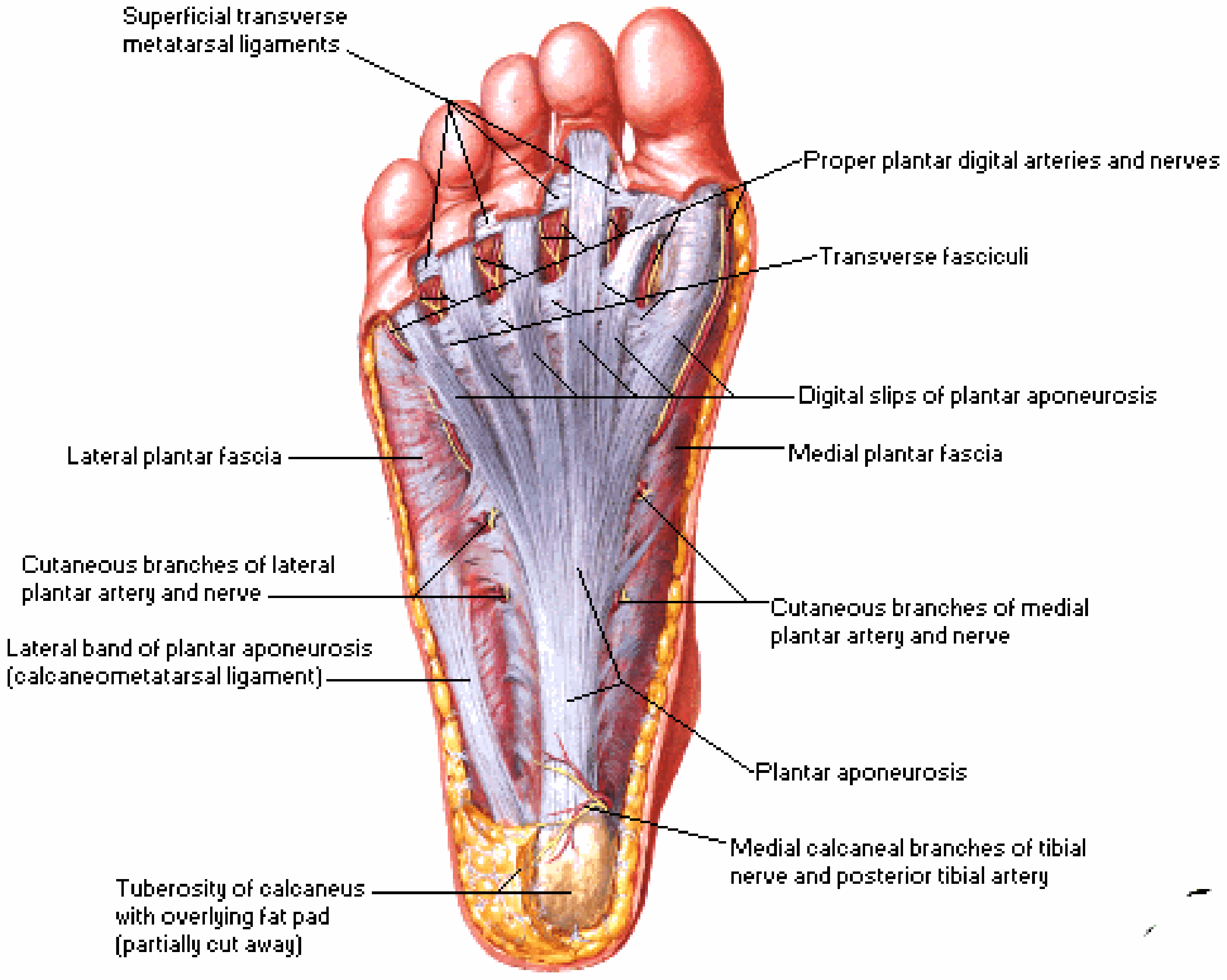
Superficial Dissection



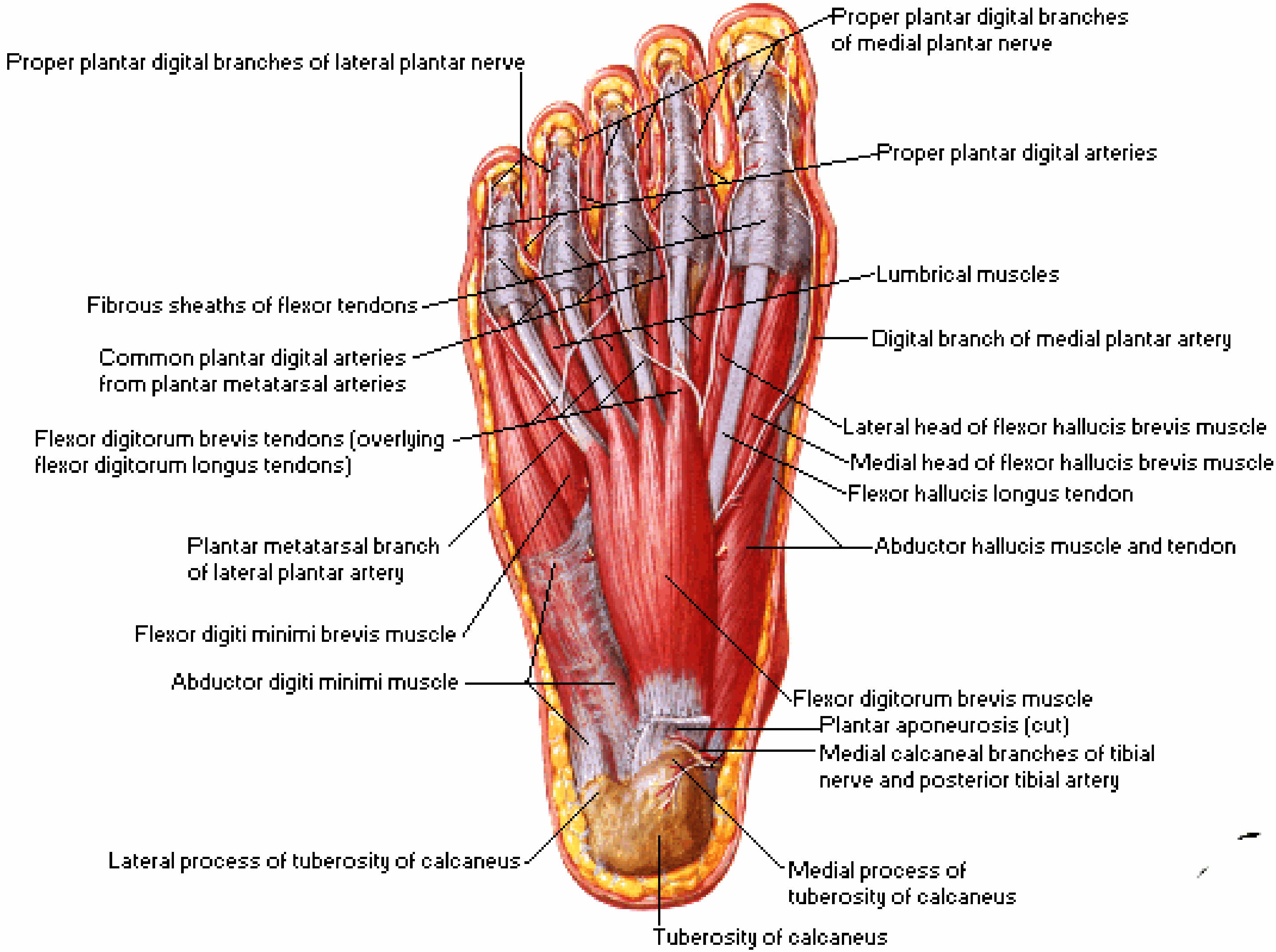
Deep Dissection



Superficial Dissection

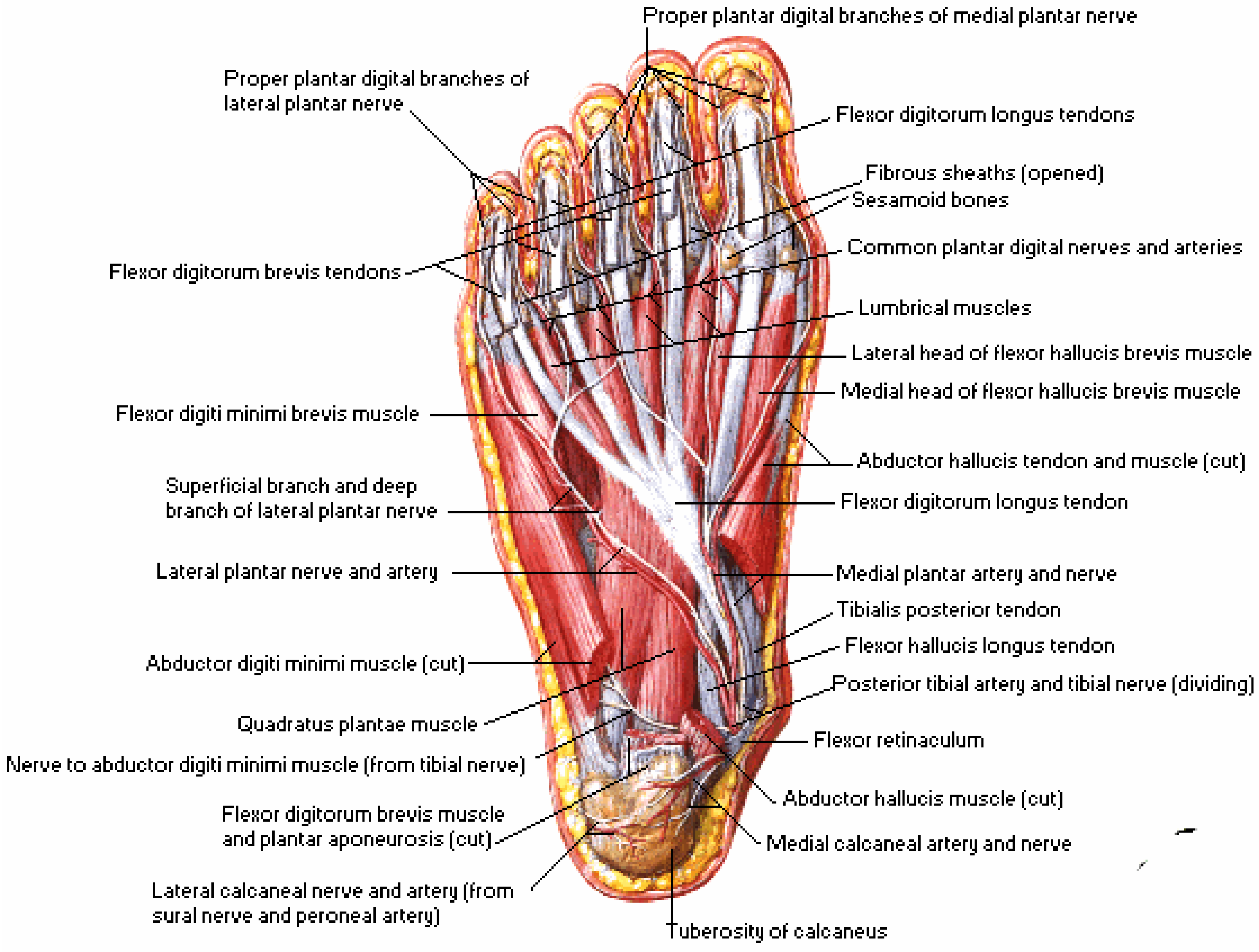


First Layer

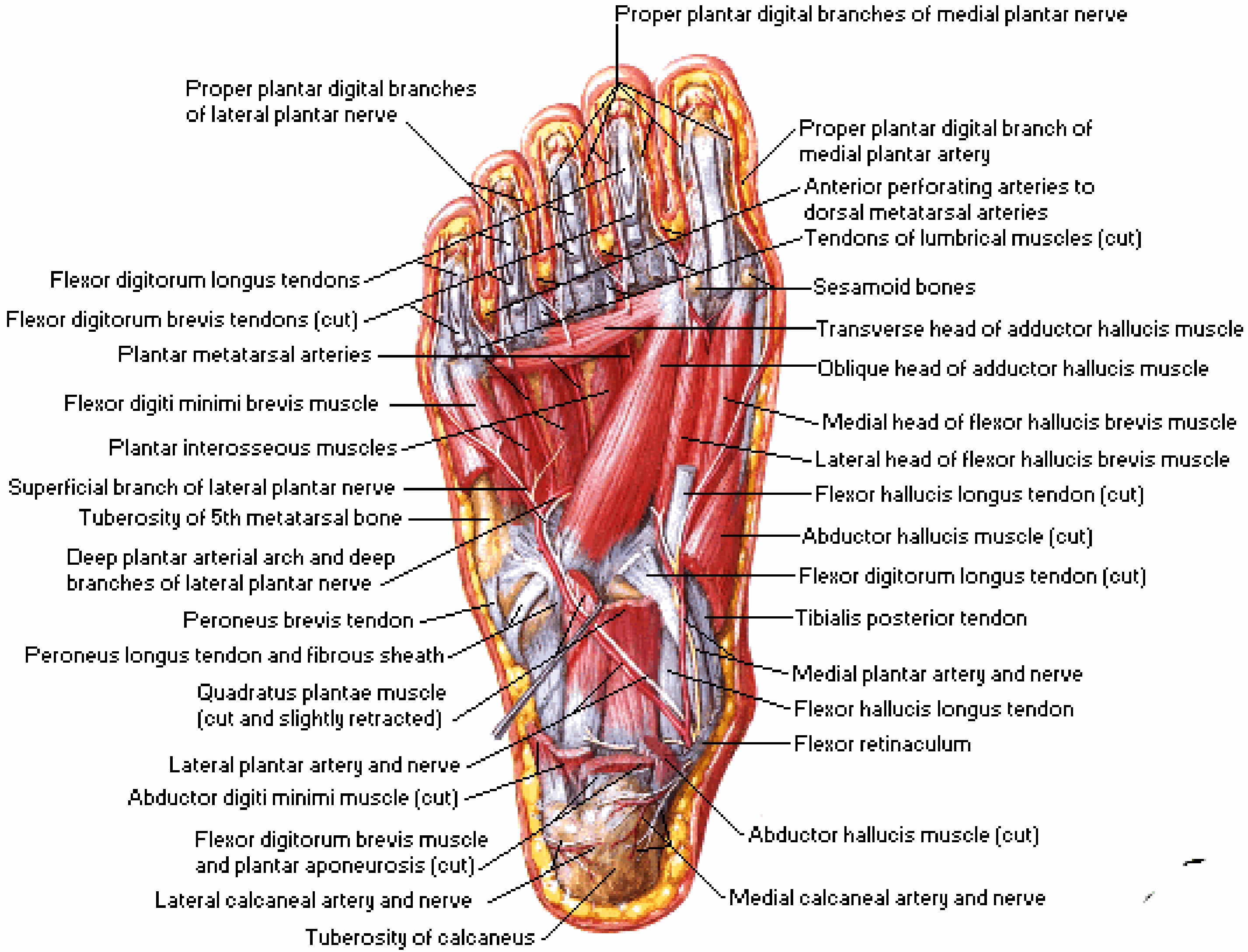


Proper plantar digital branches of lateral plantar nerve
Proper plantar digital branches of medial plantar nerve
Proper plantar digital arteries
Lumbrical muscles
Fibrous sheaths of flexor tendons
Digital branch of medial plantar artery
Common plantar digital arteries from plantar metatarsal arteries
Lateral head of flexor hallucis brevis muscle
Flexor digitorum brevis tendons (overlying flexor digitorum longus tendons)
Medial head of flexor hallucis brevis muscle
Flexor hallucis longus tendon
Plantar metatarsal branch of lateral plantar artery
Abductor hallucis muscle and tendon
Flexor digiti minimi brevis muscle
Abductor digiti minimi muscle
Flexor digitorum brevis muscle
Plantar aponeurosis (cut)
Medial calcaneal branches of tibial nerve and posterior tibial artery
Lateral process of tuberosity of calcaneus
Medial process of tuberosity of calcaneus
Tuberosity of calcaneus

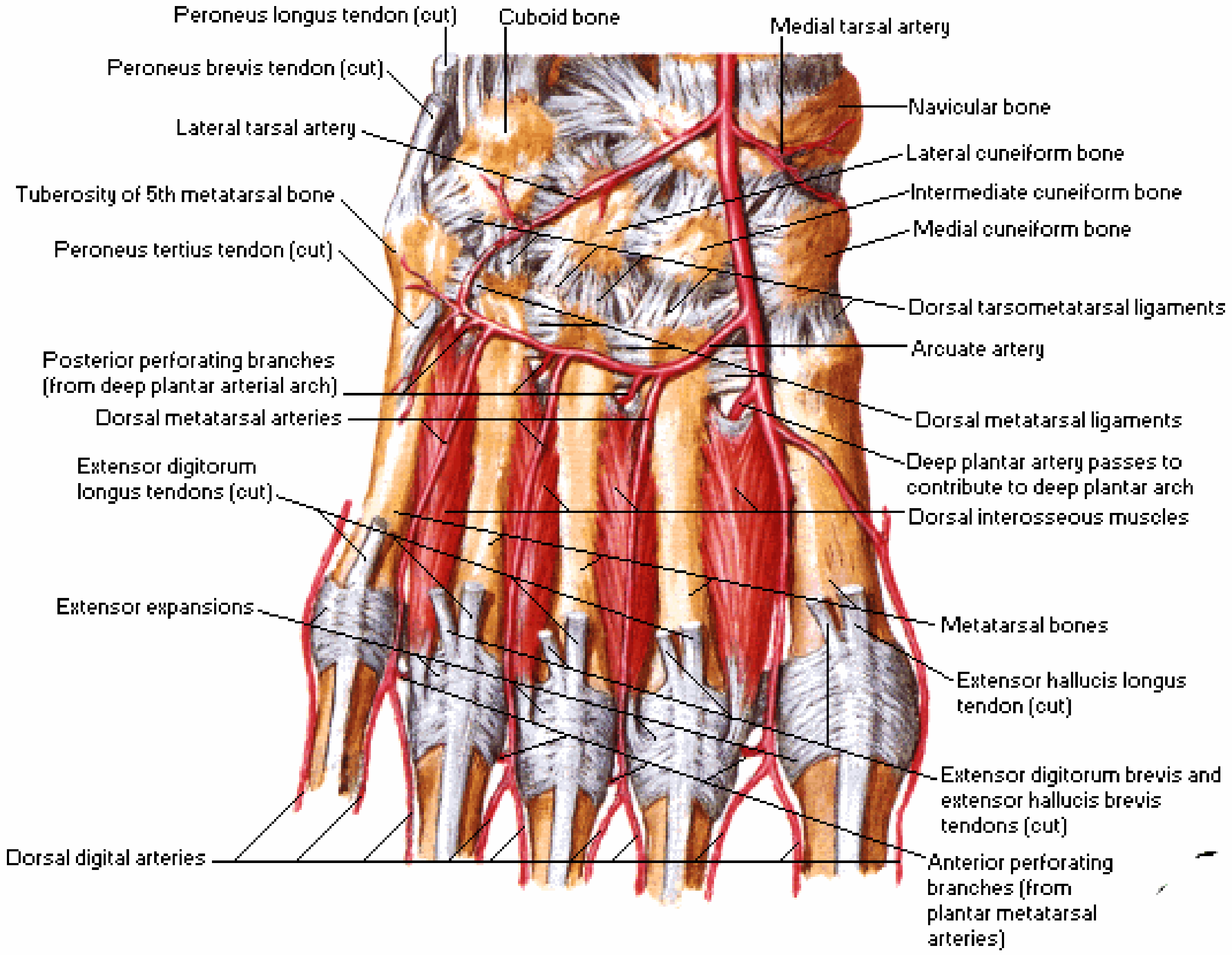
Second Layer



Third Layer

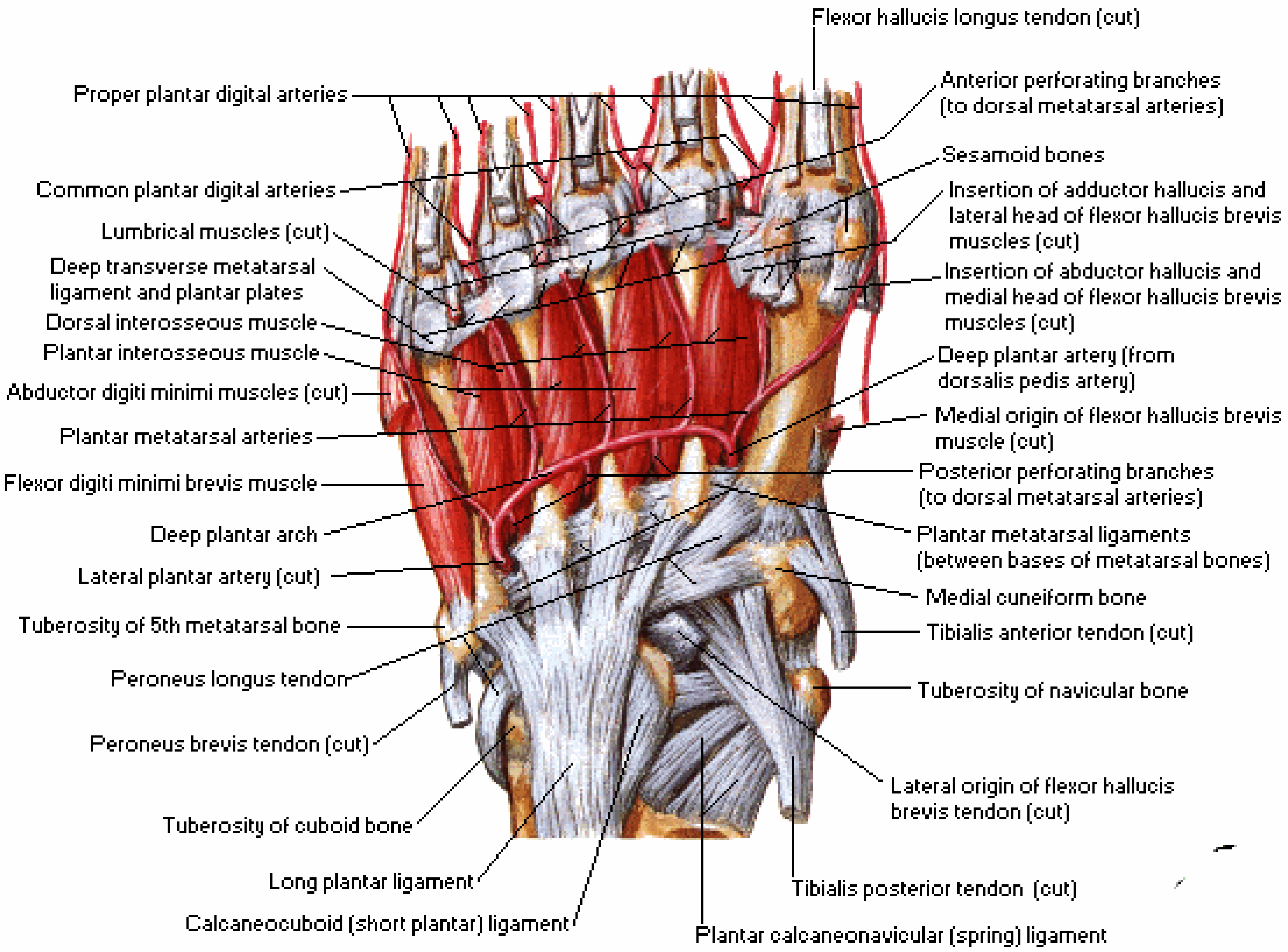

Proper plantar digital branches of medial plantar nerve
Proper plantar digital branches of lateral plantar nerve
Proper plantar digital branch of medial plantar artery
Anterior perforating arteries to dorsal metatarsal arteries
Tendons of lumbrical muscles (cut)
Flexor digitorum longus tendons
Sesamoid bones
Flexor digitorum brevis tendons (cut)
Transverse head of adductor hallucis muscle
Plantar metatarsal arteries
Oblique head of adductor hallucis muscle
Flexor digiti minimi brevis muscle
Medial head of flexor hallucis brevis muscle
Plantar interosseous muscles
Lateral head of flexor hallucis brevis muscle
Superficial branch of lateral plantar nerve
Flexor hallucis longus tendon (cut)
Tuberosity of 5th metatarsal bone
Abductor hallucis muscle (cut)
Deep plantar arterial arch and deep branches of lateral plantar nerve
Flexor digitorum longus tendon (cut)
Peroneus brevis tendon
Tibialis posterior tendon
Peroneus longus tendon and fibrous sheath
Medial plantar artery and nerve
Quadratus plantae muscle (cut and slightly retracted)
Flexor hallucis longus tendon
Flexor retinaculum
Lateral plantar artery and nerve
Abductor digiti minimi muscle (cut)
Abductor hallucis muscle (cut)
Flexor digitorum brevis muscle and plantar aponeurosis (cut)
Lateral calcaneal artery and nerve
Medial calcaneal artery and nerve
Tuberosity of calcaneus

Dorsal View

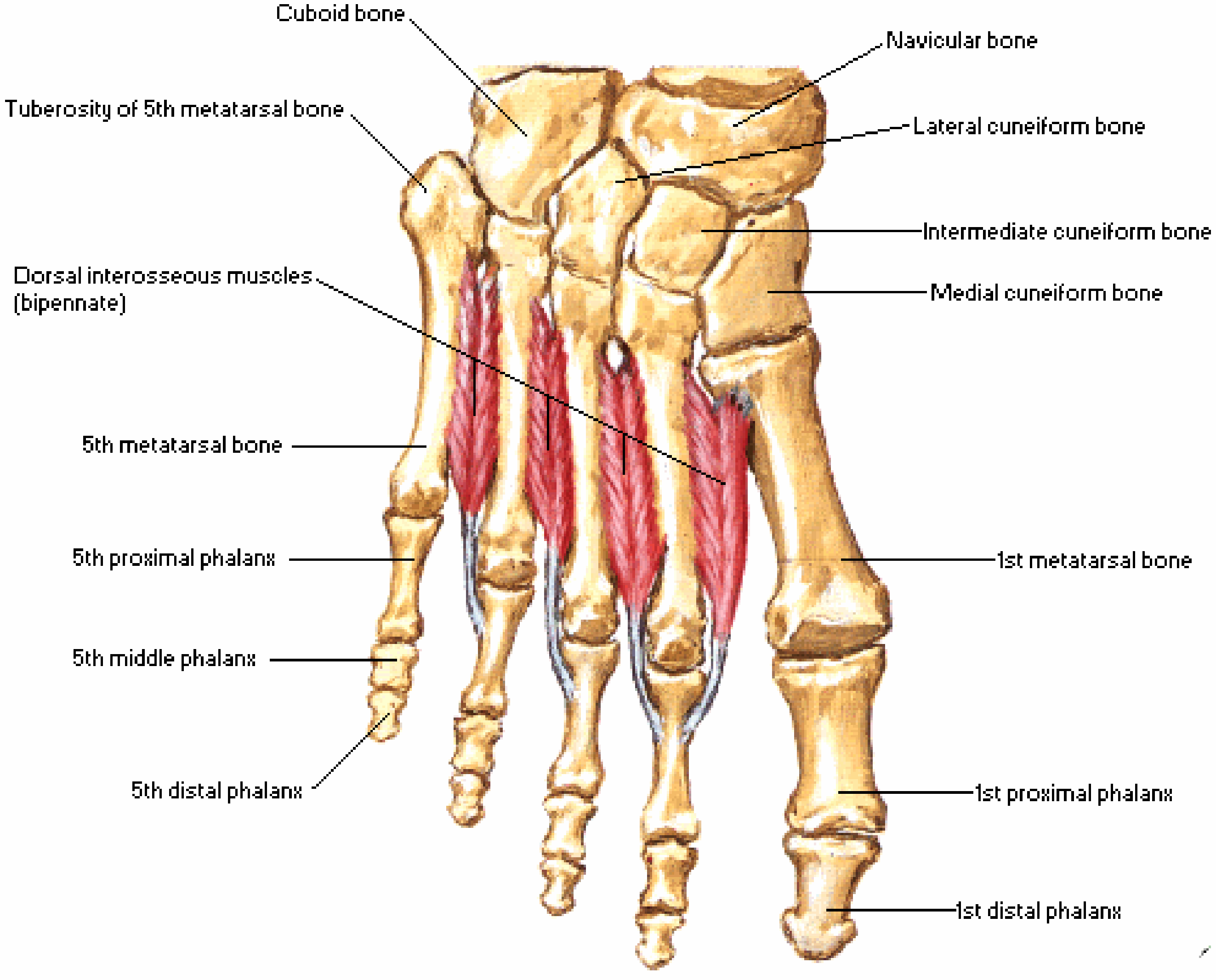


Peroneus longus tendon (cut)
Cuboid bone
Medial tarsal artery
Peroneus brevis tendon (cut)
Navicular bone
Lateral tarsal artery
Lateral cuneiform bone
Tuberosity of 5th metatarsal bone
Intermediate cuneiform bone
Medial cuneiform bone
Peroneus tertius tendon (cut)
Dorsal tarsometatarsal ligaments
Arcuate artery
Posterior perforating branches (from deep plantar arterial arch)
Dorsal metatarsal arteries
Dorsal metatarsal ligaments
Deep plantar artery passes to contribute to deep plantar arch
Extensor digitorum longus tendons (cut)
Dorsal interosseous muscles
Extensor expansions
Metatarsal bones
Extensor hallucis longus tendon (cut)
Extensor digitorum brevis and extensor hallucis brevis tendons (cut)
Dorsal digital arteries
Anterior perforating branches (from plantar metatarsal arteries)

Plantar View

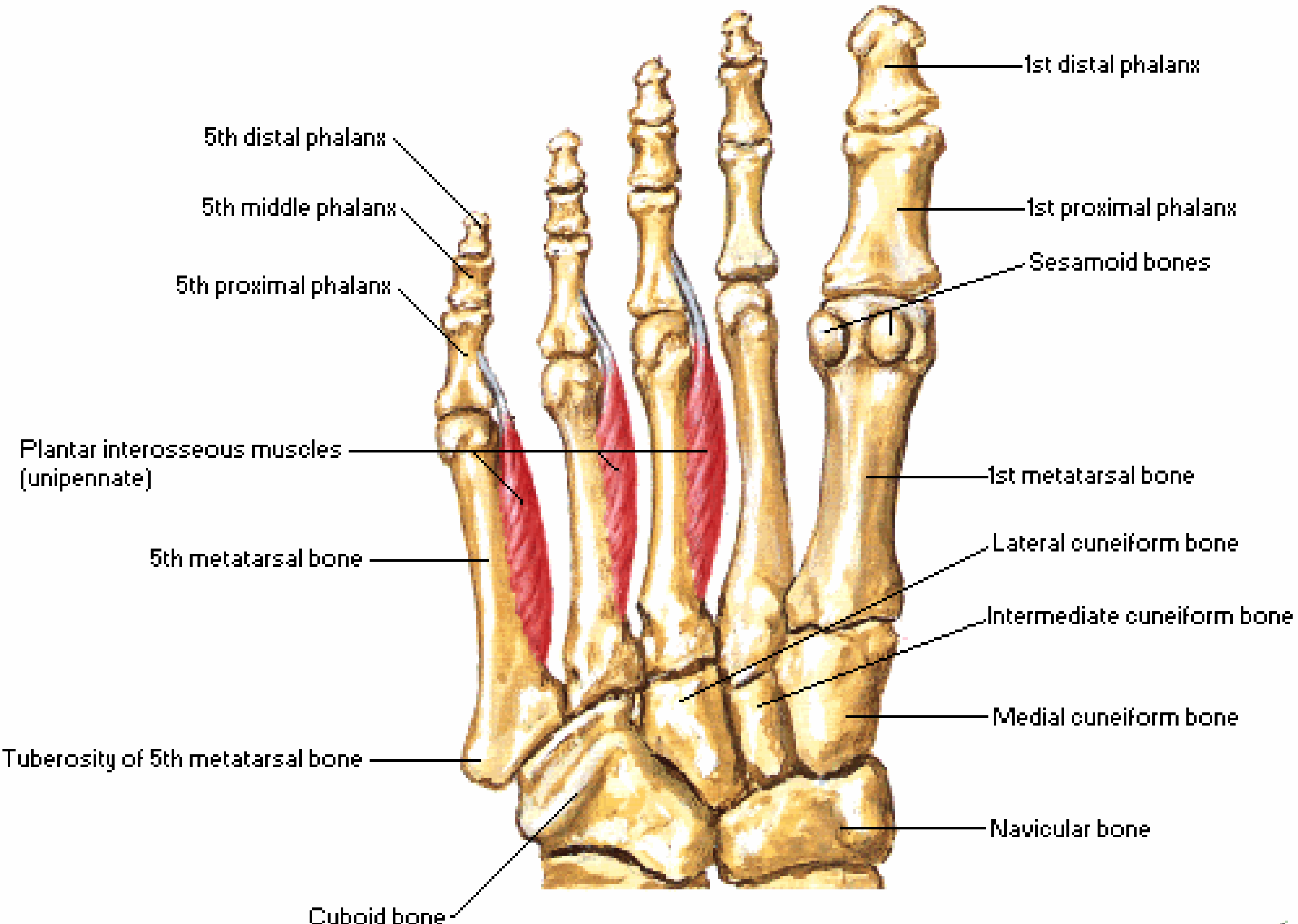


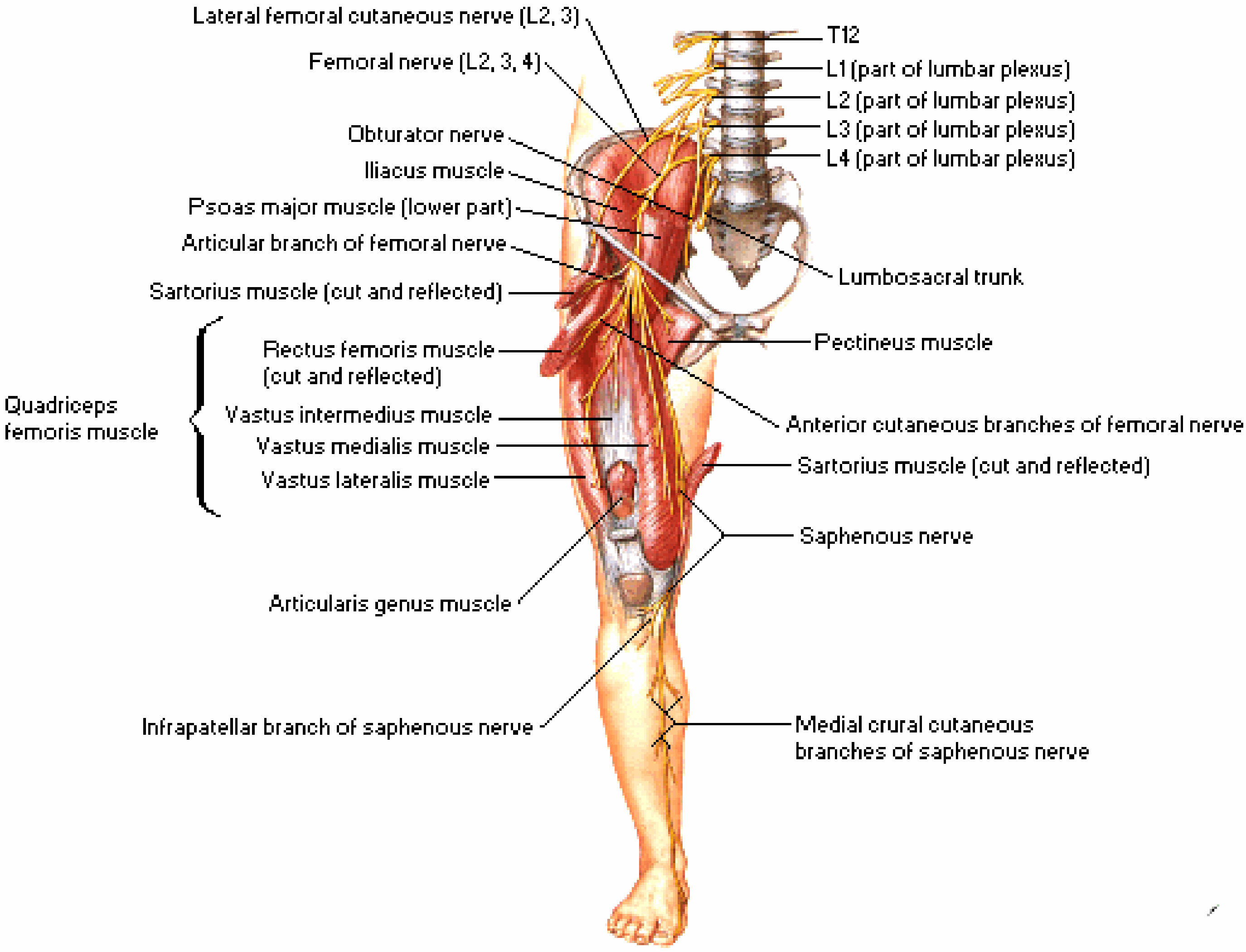
Dorsal View



Cuboid bone
Navicular bone
Tuberosity of 5th metatarsal bone
Lateral cuneiform bone
Intermediate cuneiform bone
Dorsal interosseous muscles (bipennate)
Medial cuneiform bone
5th metatarsal bone
5th proximal phalanx
1st metatarsal bone
5th middle phalanx
5th distal phalanx
1st proximal phalanx
1st distal phalanx

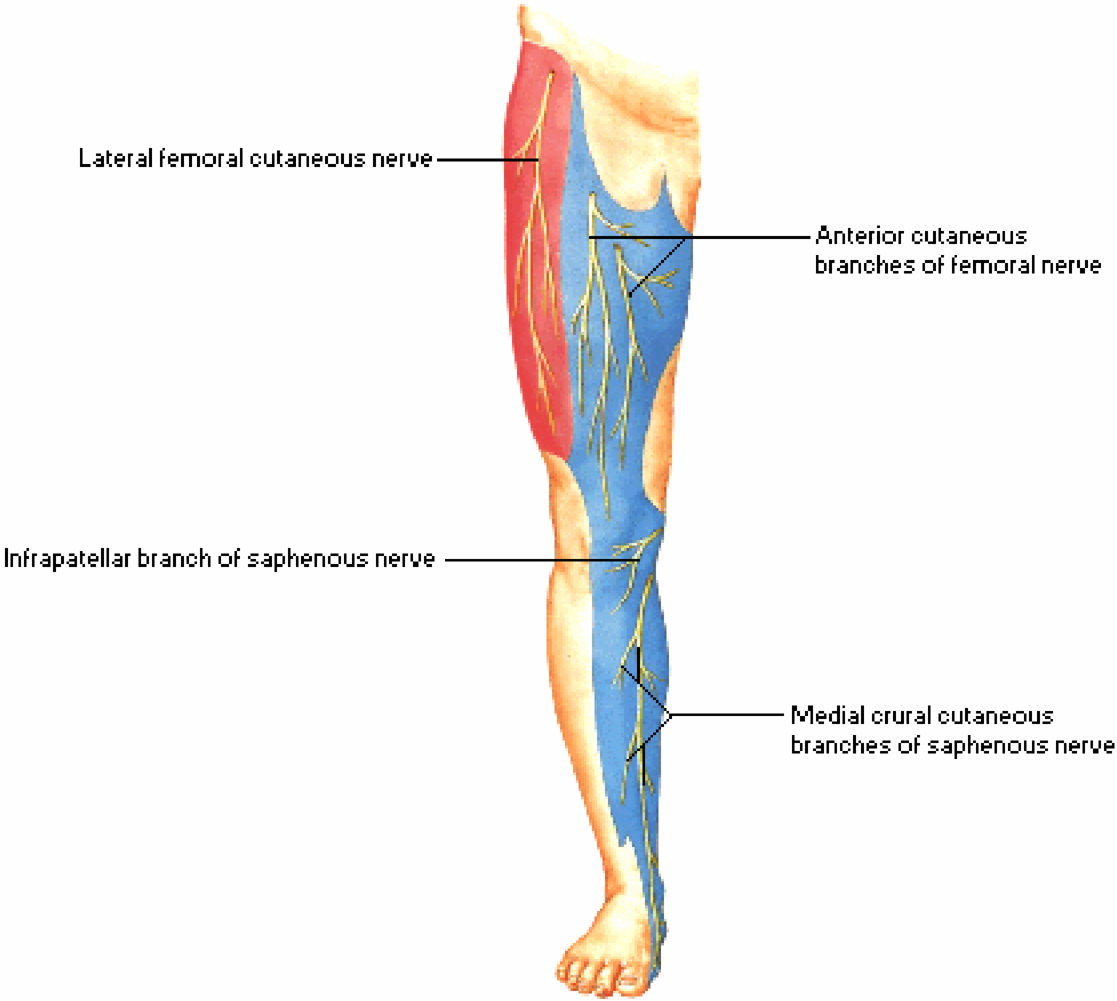
Plantar View

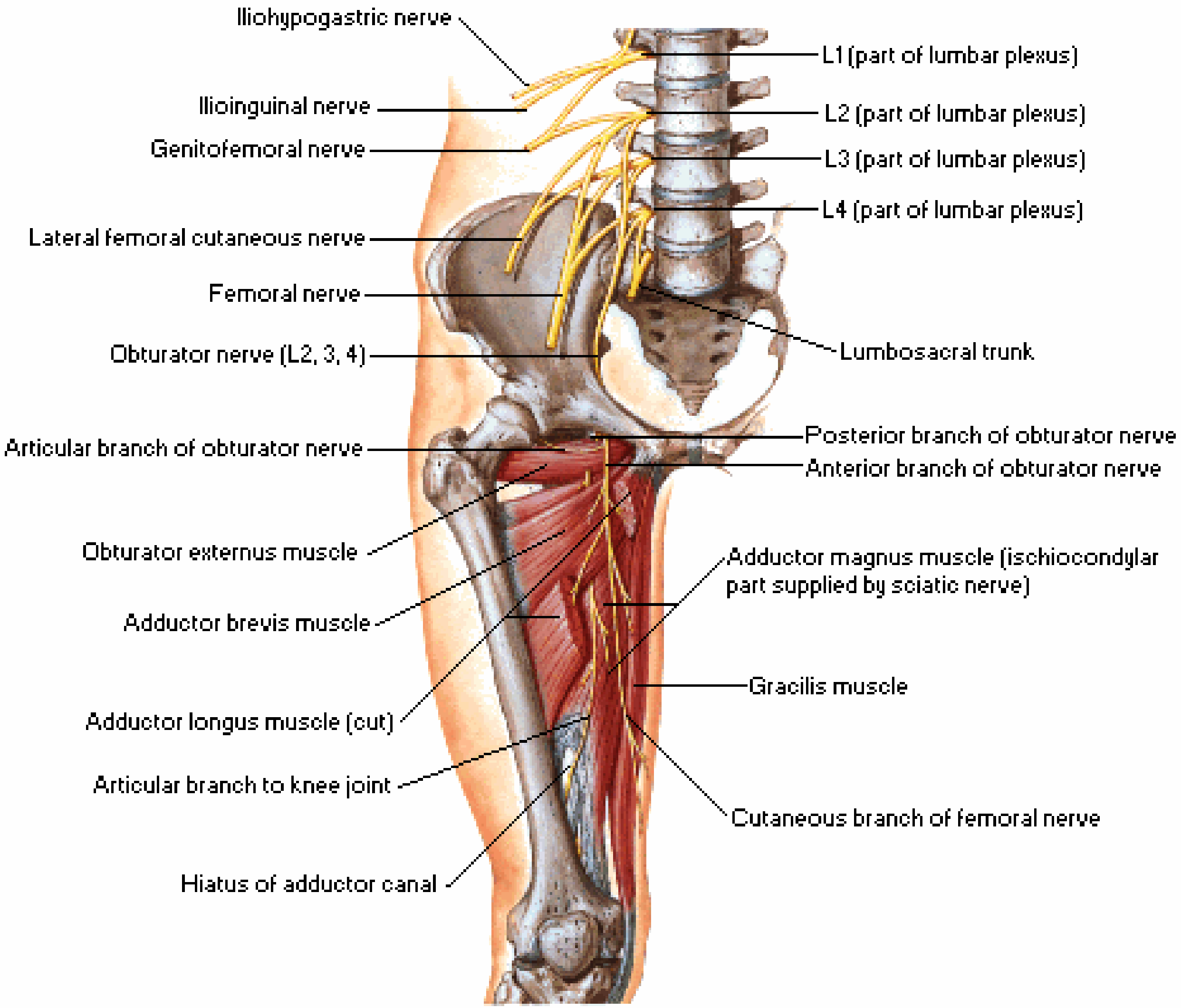




Note: only muscles innervated by femoral nerve shown

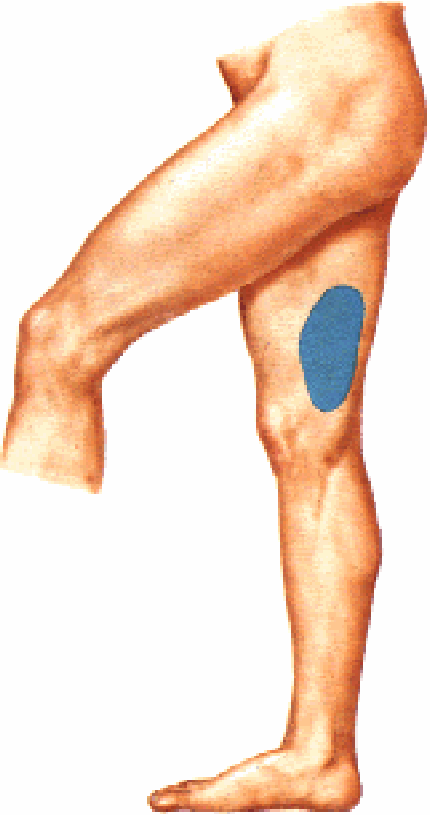
Cutaneous Innervation

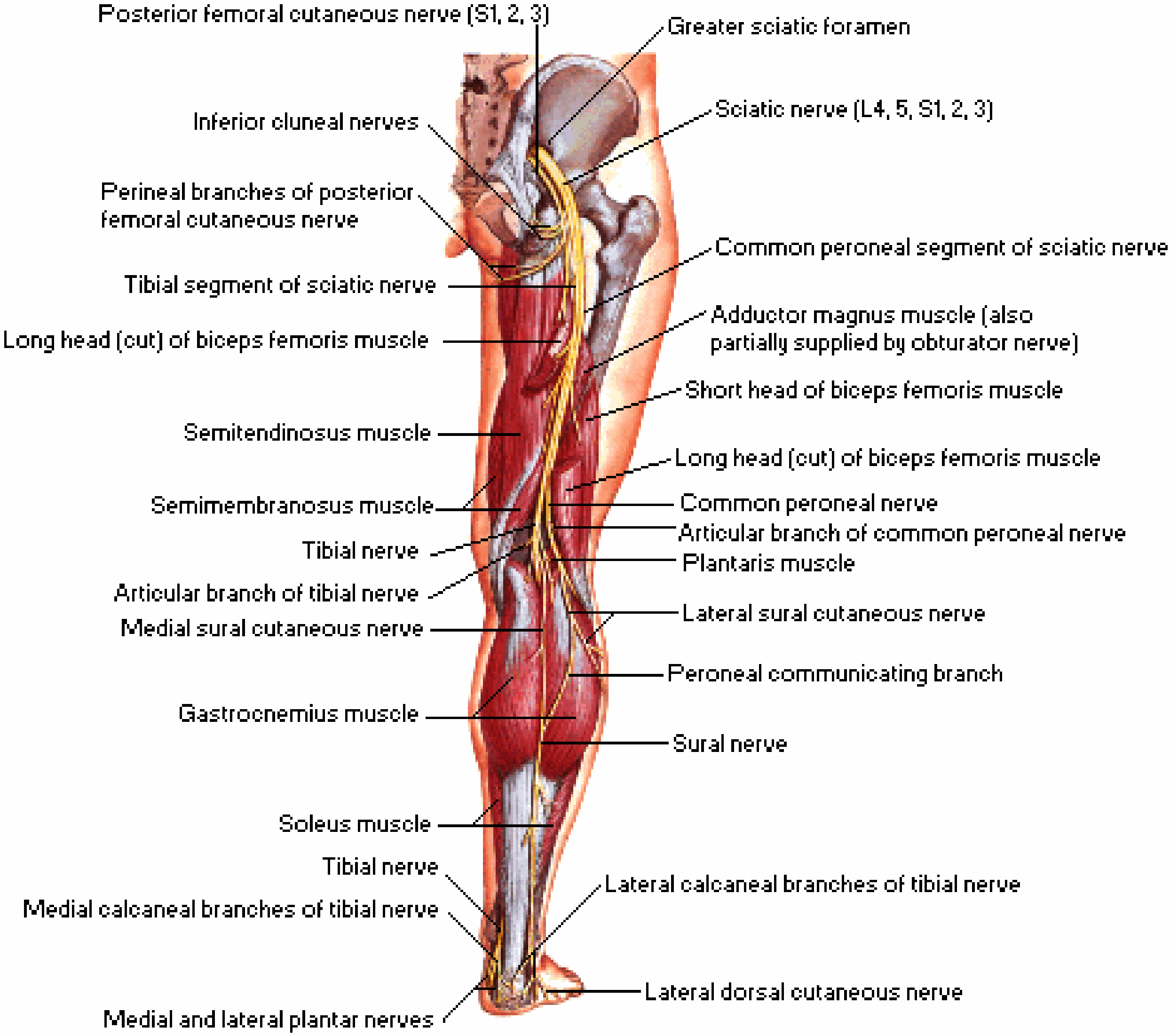




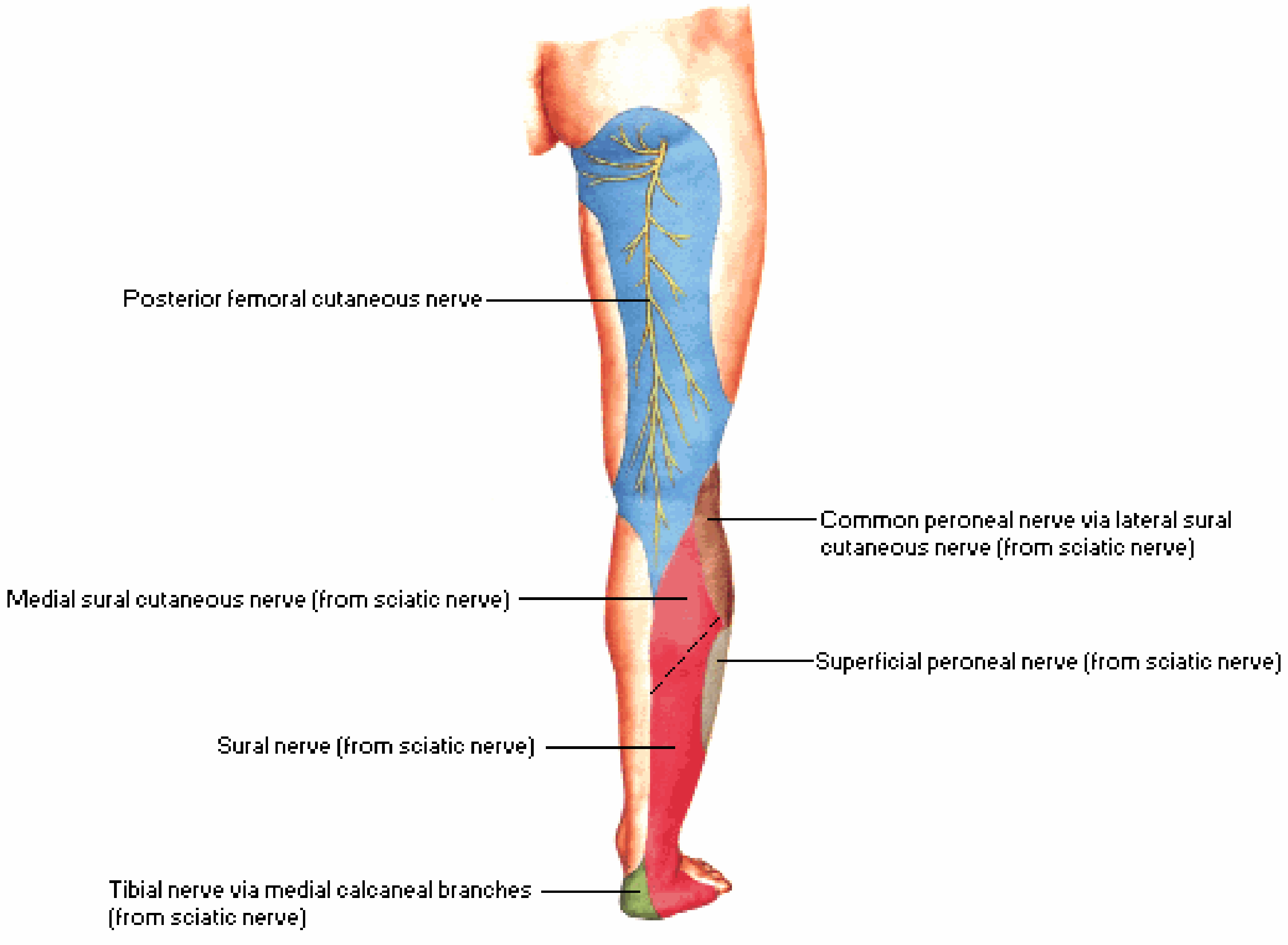
Note: only muscles innervated by obturator nerve shown

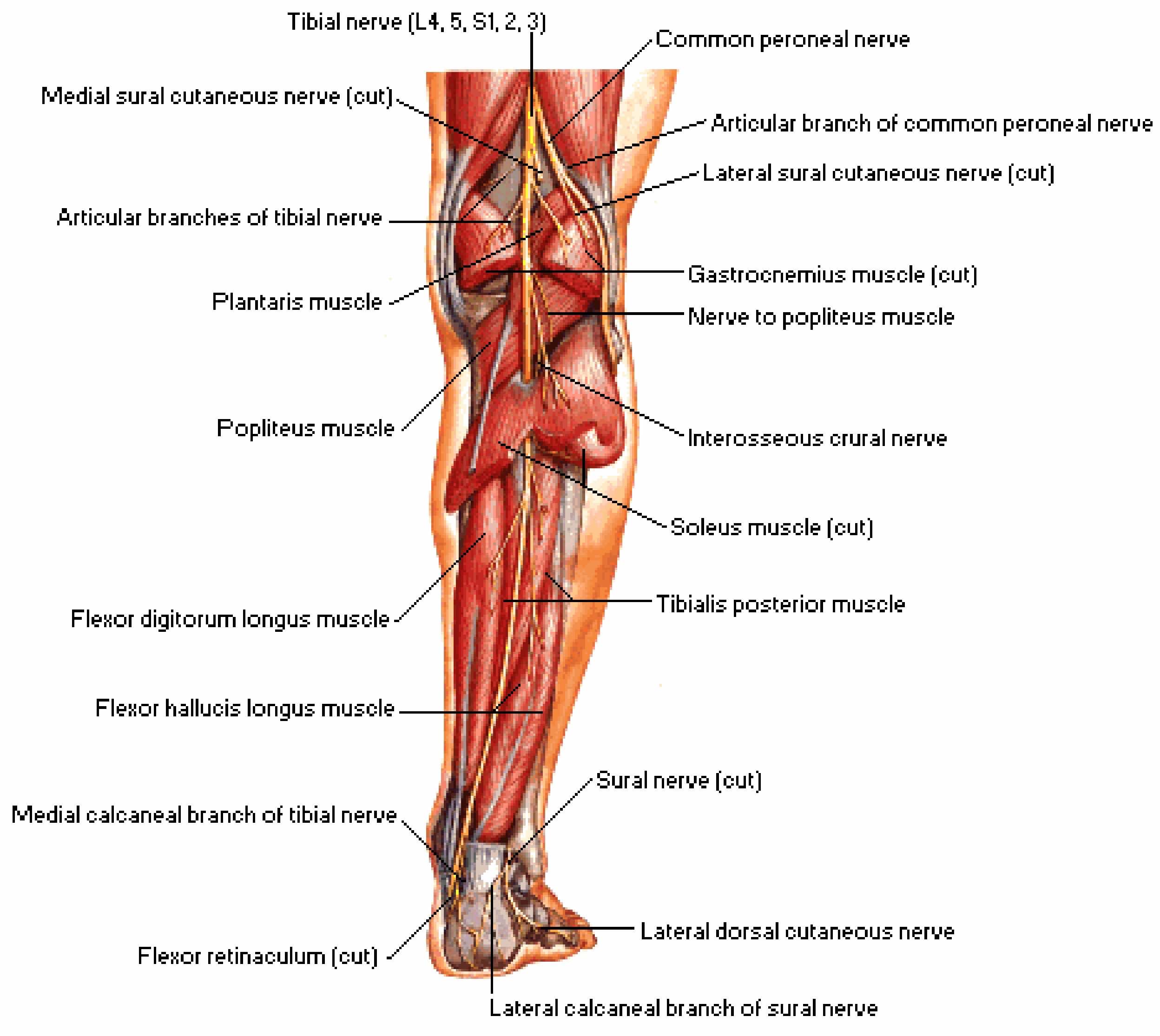
Cutaneous Innervation



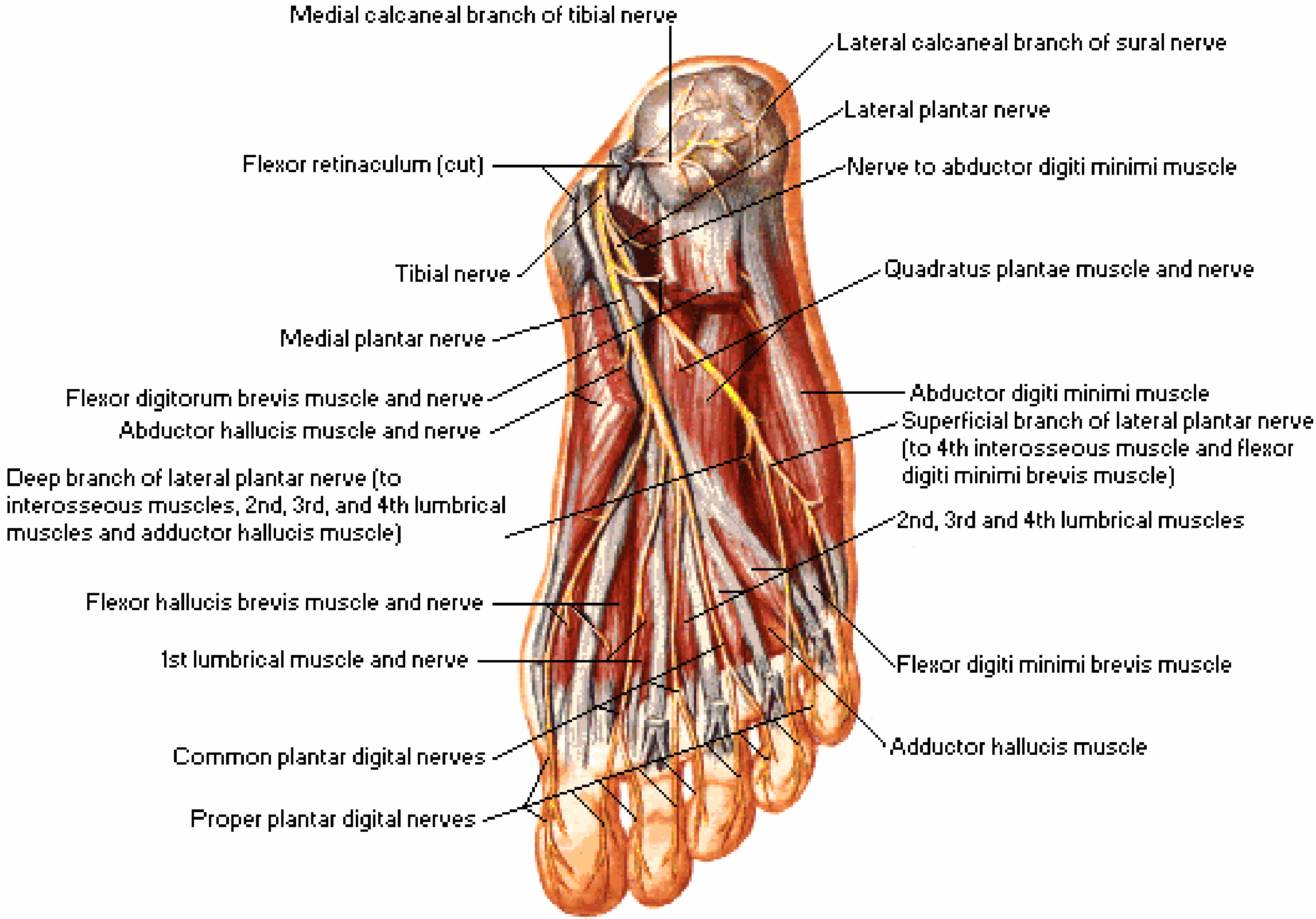

Posterior femoral cutaneous nerve (S1, 2, 3)
Greater sciatic foramen
Inferior cluneal nerves
Sciatic nerve (L4, 5, S1, 2, 3)
Perineal branches of posterior femoral cutaneous nerve
Common peroneal segment of sciatic nerve
Tibial segment of sciatic nerve
Adductor magnus muscle (also partially supplied by obturator nerve)
Long head (cut) of biceps femoris muscle
Short head of biceps femoris muscle
Semitendinosus muscle
Long head (cut) of biceps femoris muscle
Semimembranosus muscle
Common peroneal nerve
Articular branch of common peroneal nerve
Tibial nerve
Plantaris muscle
Articular branch of tibial nerve
Lateral sural cutaneous nerve
Medial sural cutaneous nerve
Peroneal communicating branch
Gastrocnemius muscle
Sural nerve
Soleus muscle
Tibial nerve
Lateral calcaneal branches of tibial nerve
Medial calcaneal branches of tibial nerve
Lateral dorsal cutaneous nerve
Medial and lateral plantar nerves

Cutaneous Innervation



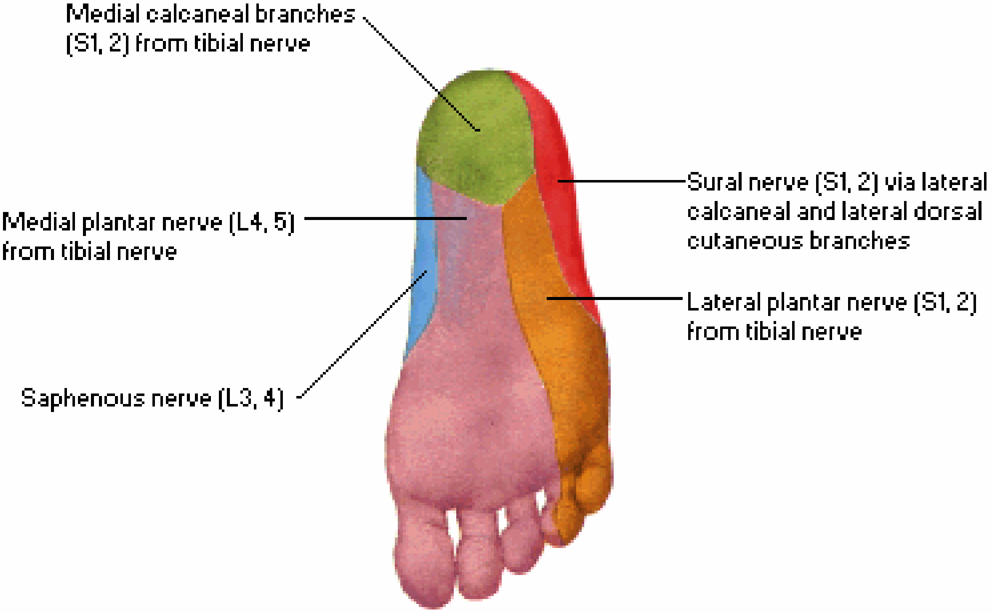

Tibial nerve (L4, 5, S1, 2, 3)
Common peroneal nerve
Medial sural cutaneous nerve (cut)
Articular branch of common peroneal nerve
Lateral sural cutaneous nerve (cut)
Articular branches of tibial nerve
Gastrocnemius muscle (cut)
Plantaris muscle
Nerve to popliteus muscle
Popliteus muscle
Interosseous crural nerve
Soleus muscle (cut)
Flexor digitorum longus muscle
Tibialis posterior muscle
Flexor hallucis longus muscle
Sural nerve (cut)
Medial calcaneal branch of tibial nerve
Lateral dorsal cutaneous nerve
Flexor retinaculum (cut)
Lateral calcaneal branch of sural nerve

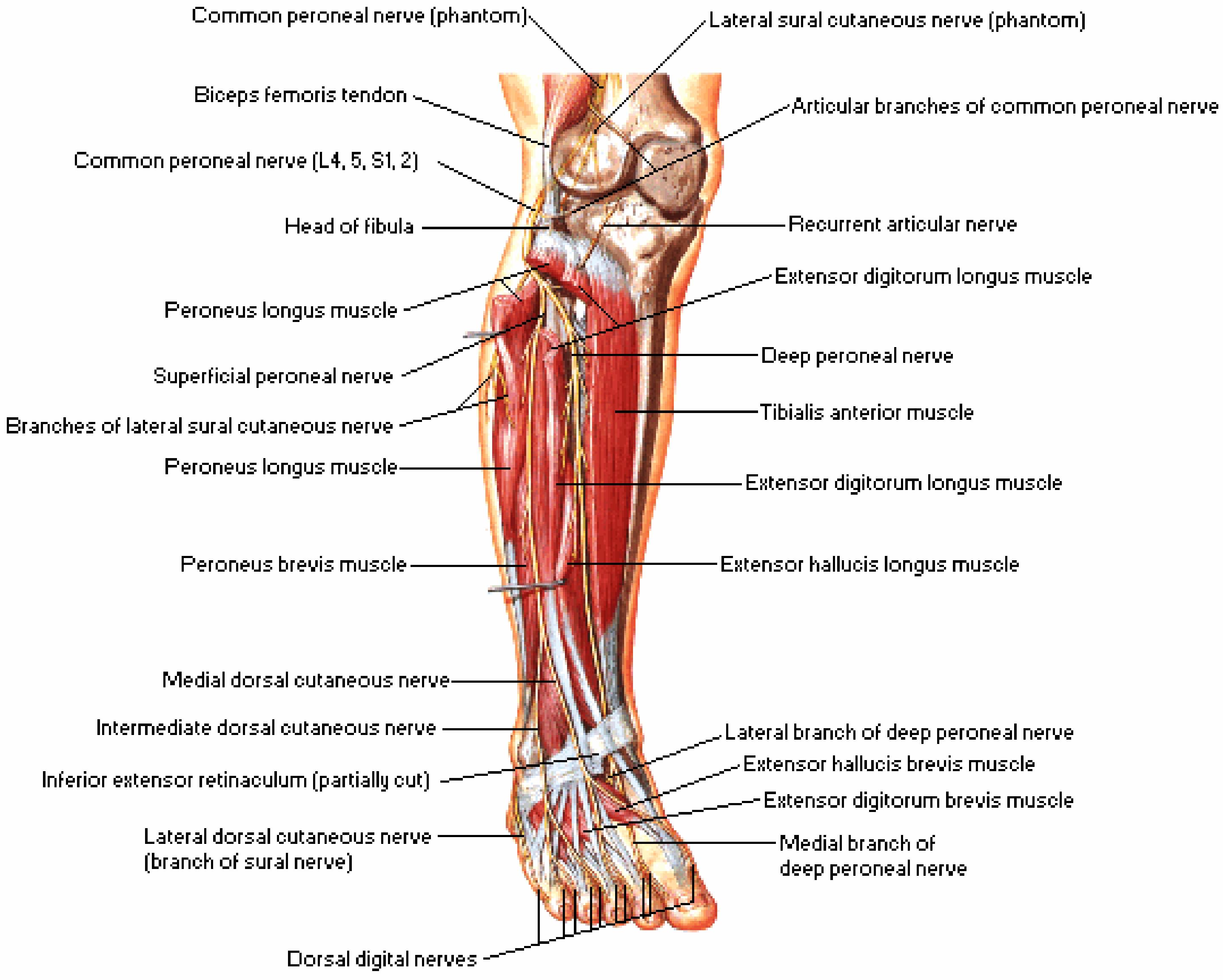
Plantar View



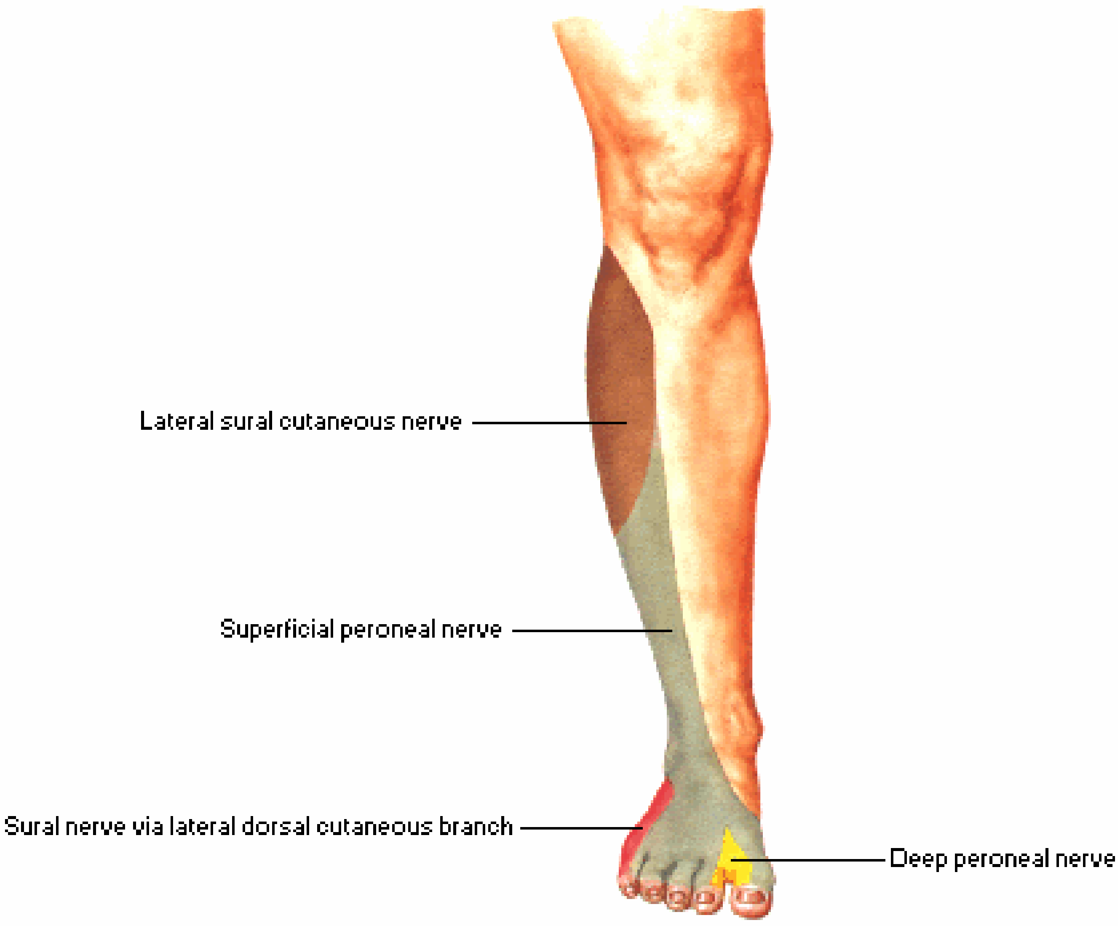
Note: articular branches not shown

Cutaneous Innervation of Sole of Foot

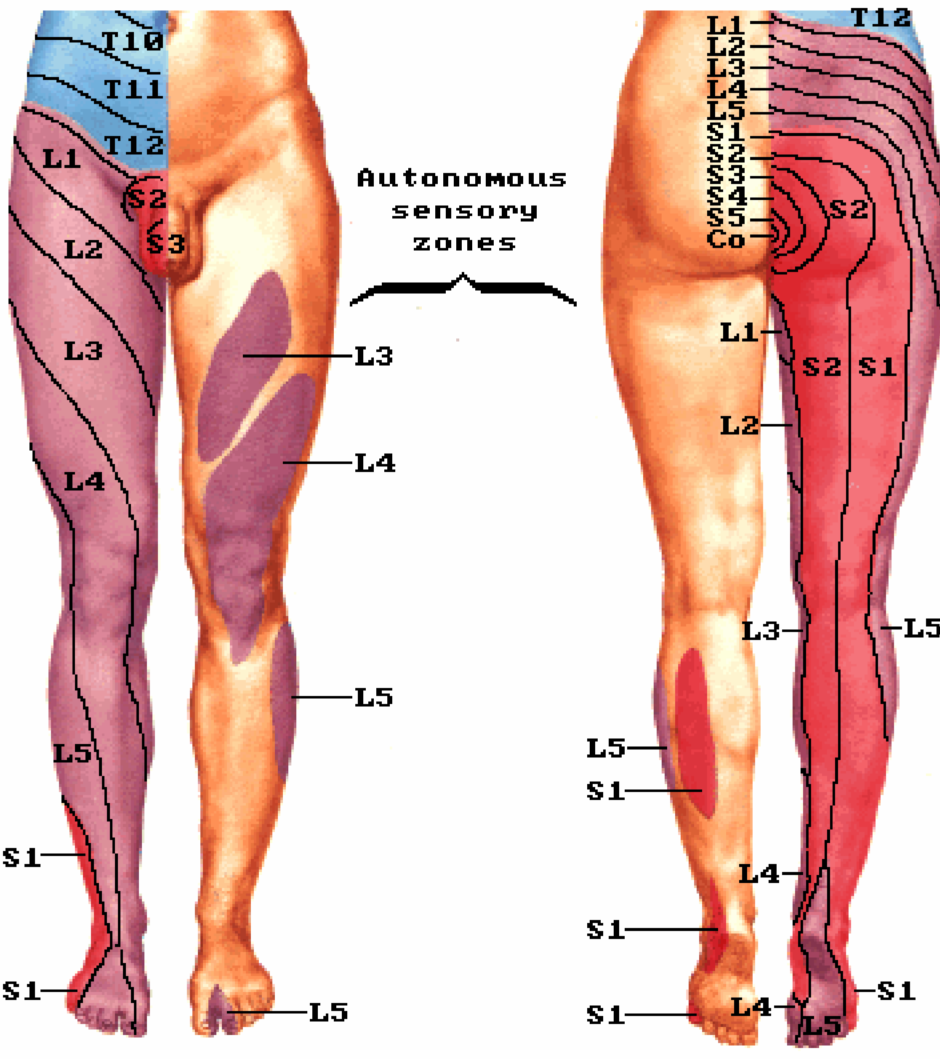


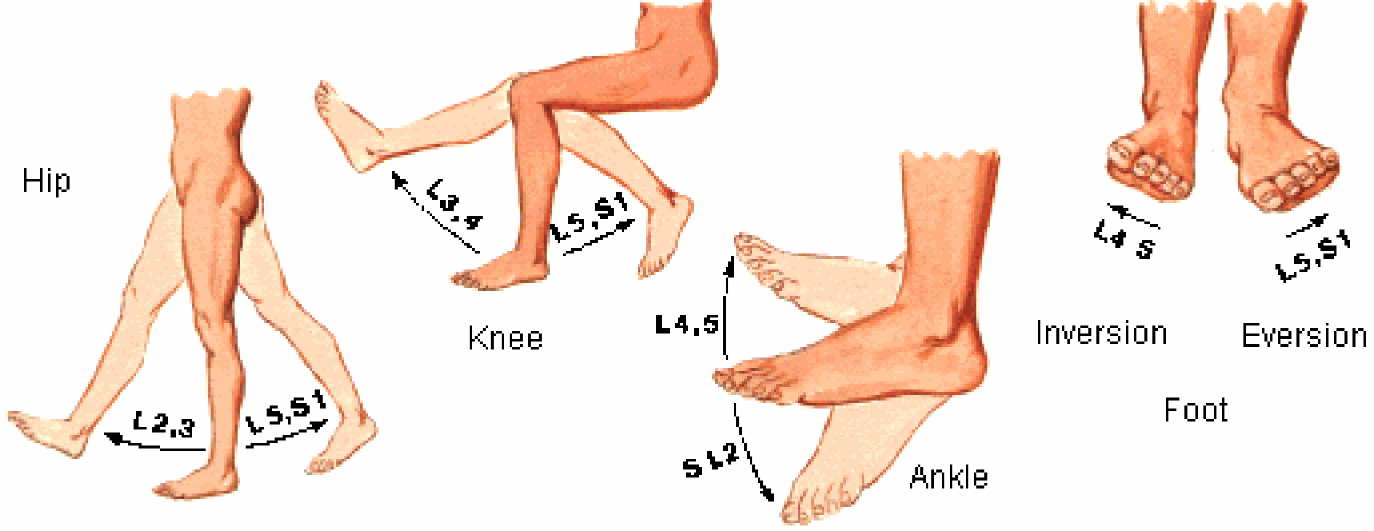

Common peroneal nerve (phantom)
Lateral sural cutaneous nerve (phantom)
Biceps femoris tendon
Articular branches of common peroneal nerve
Common peroneal nerve (L4, 5, S1, 2)
Head of fibula
Recurrent articular nerve
Extensor digitorum longus muscle
Peroneus longus muscle
Superficial peroneal nerve
Deep peroneal nerve
Tibialis anterior muscle
Branches of lateral sural cutaneous nerve
Peroneus longus muscle
Extensor digitorum longus muscle
Peroneus brevis muscle
Extensor hallucis longus muscle
Medial dorsal cutaneous nerve
Intermediate dorsal cutaneous nerve
Lateral branch of deep peroneal nerve
Extensor hallucis brevis muscle
Inferior extensor retinaculum (partially cut)
Extensor digitorum brevis muscle
Lateral dorsal cutaneous nerve
(branch of sural nerve)
Medial branch of
deep peroneal nerve
Dorsal digital nerves

Cutaneous Innervation



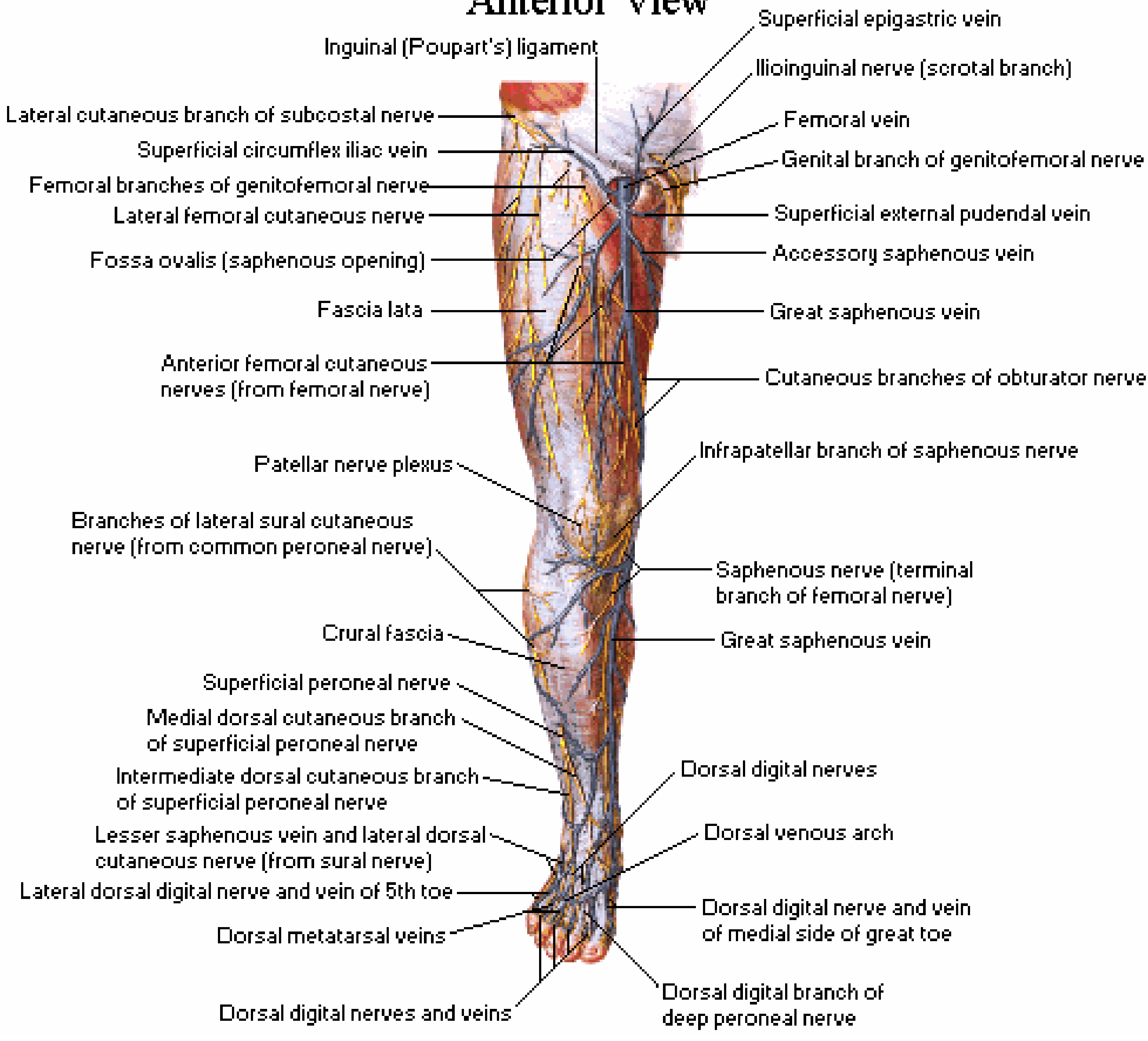
Anterior and Posterior Views



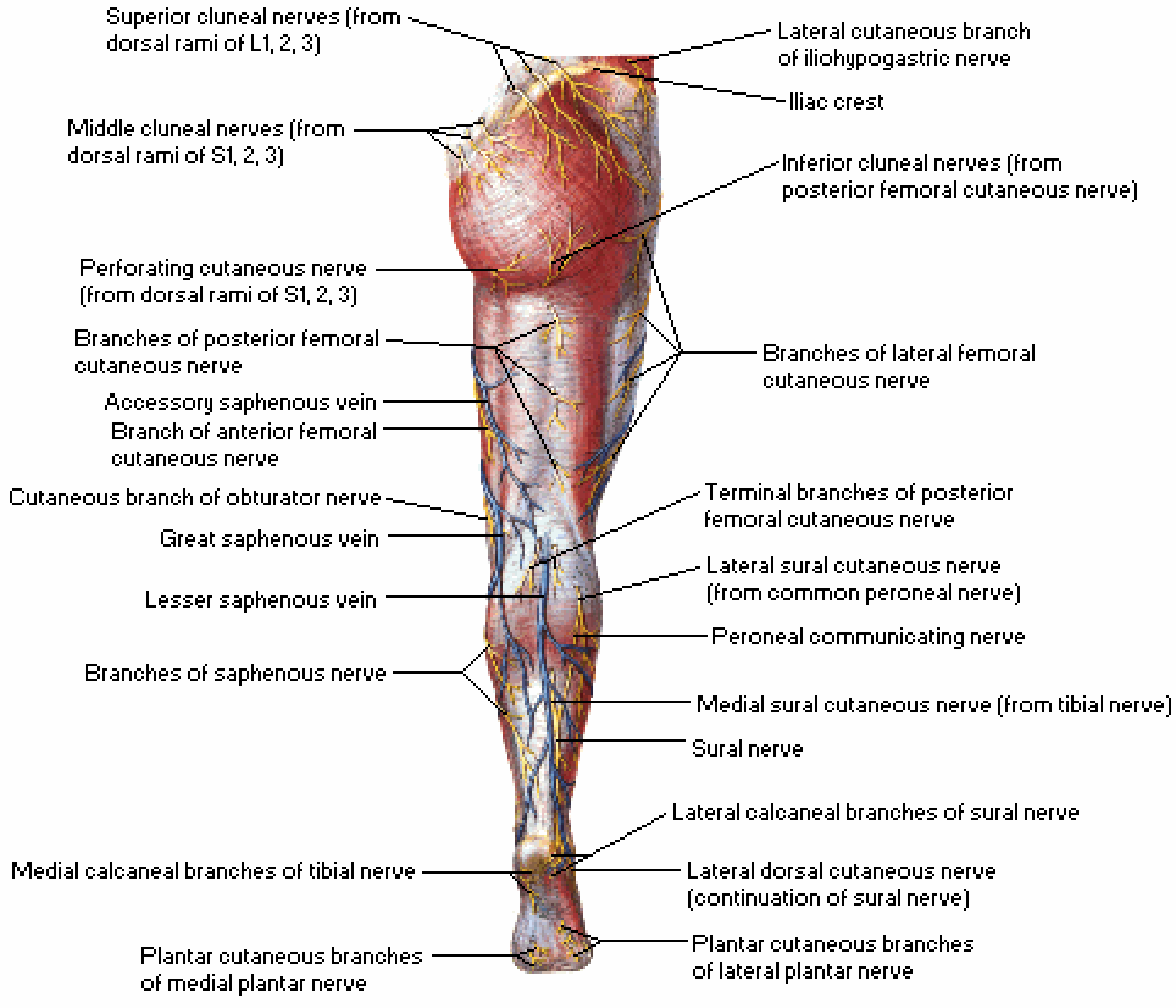


Hip
L 2,3
L 5,S 1
Knee
L 3,4
L 5,S 1
L 4,5
S 1,2
Ankle
L 4,5
L 5,S 1
Inversion
Eversion
Foot

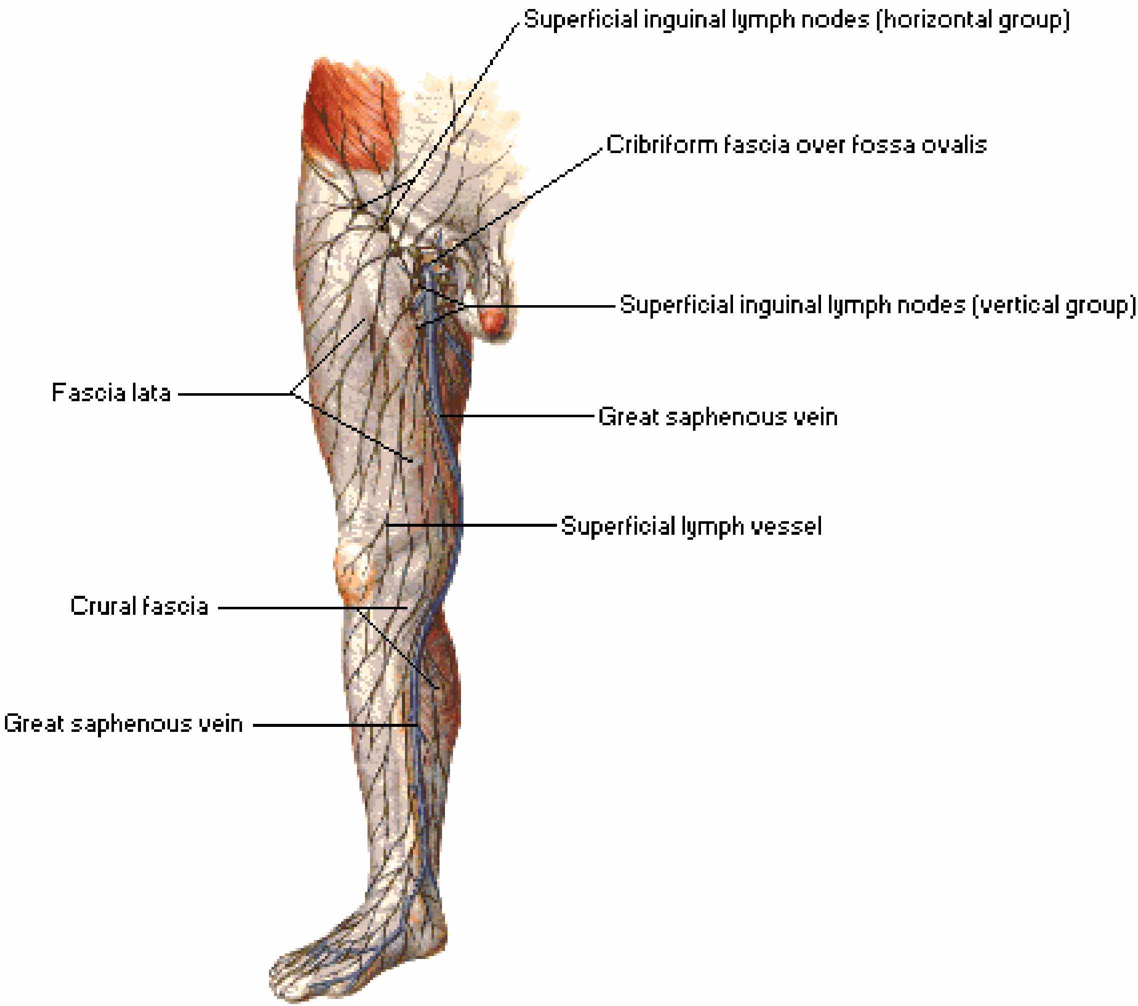
Anterior View



Posterior View

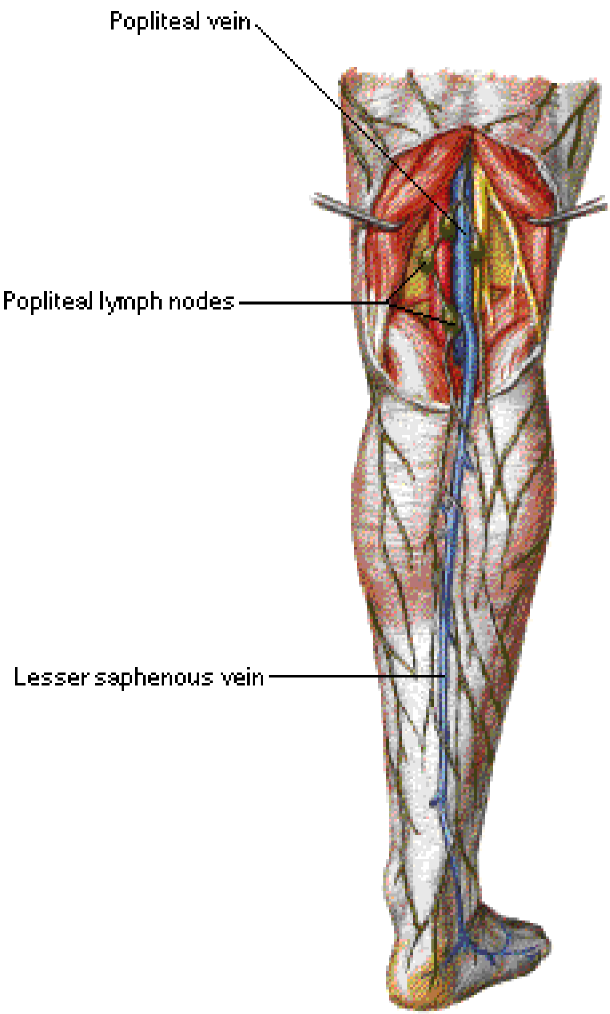


Anterior View

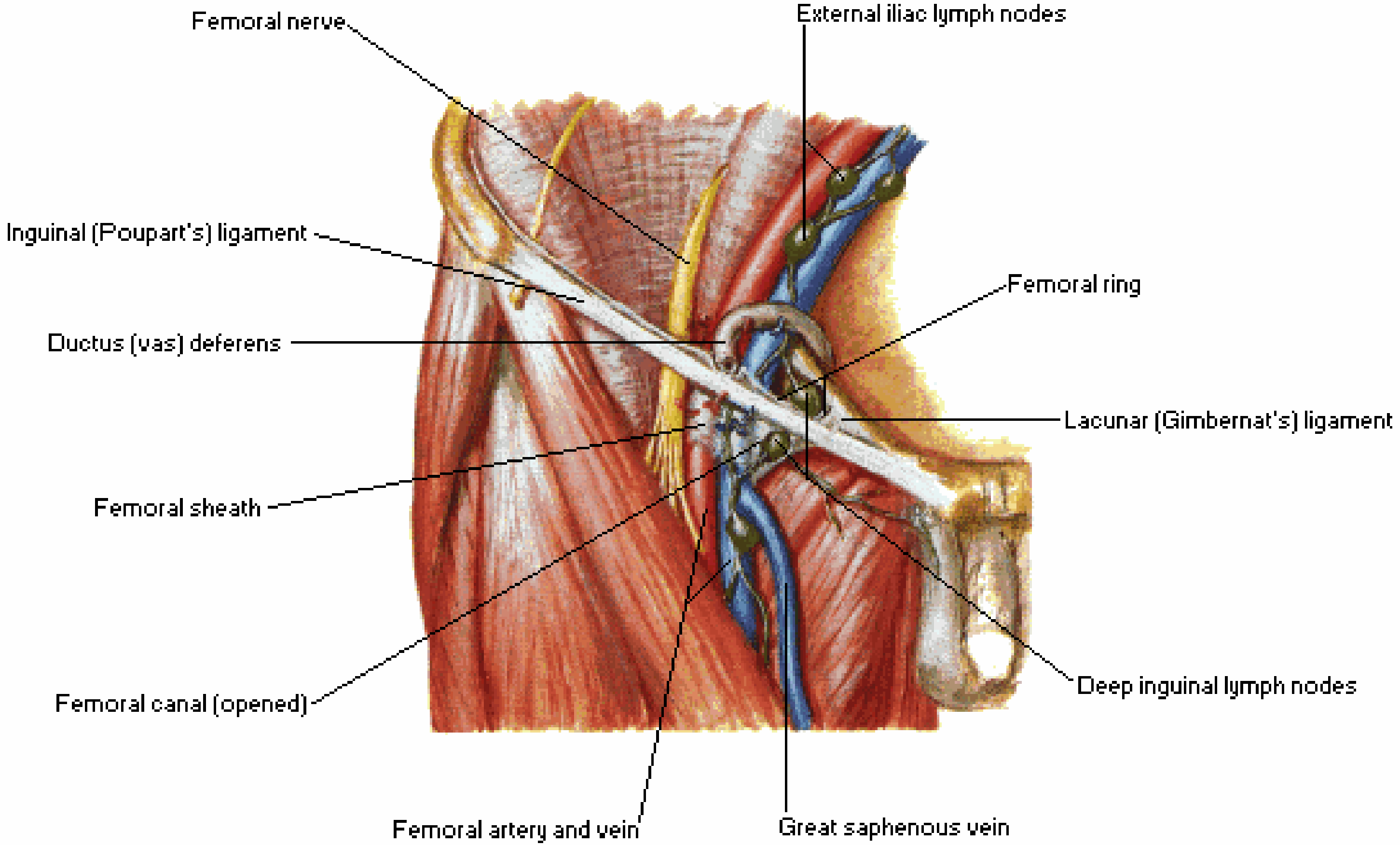


Lymph Vessels and Nodes of Lower Limb

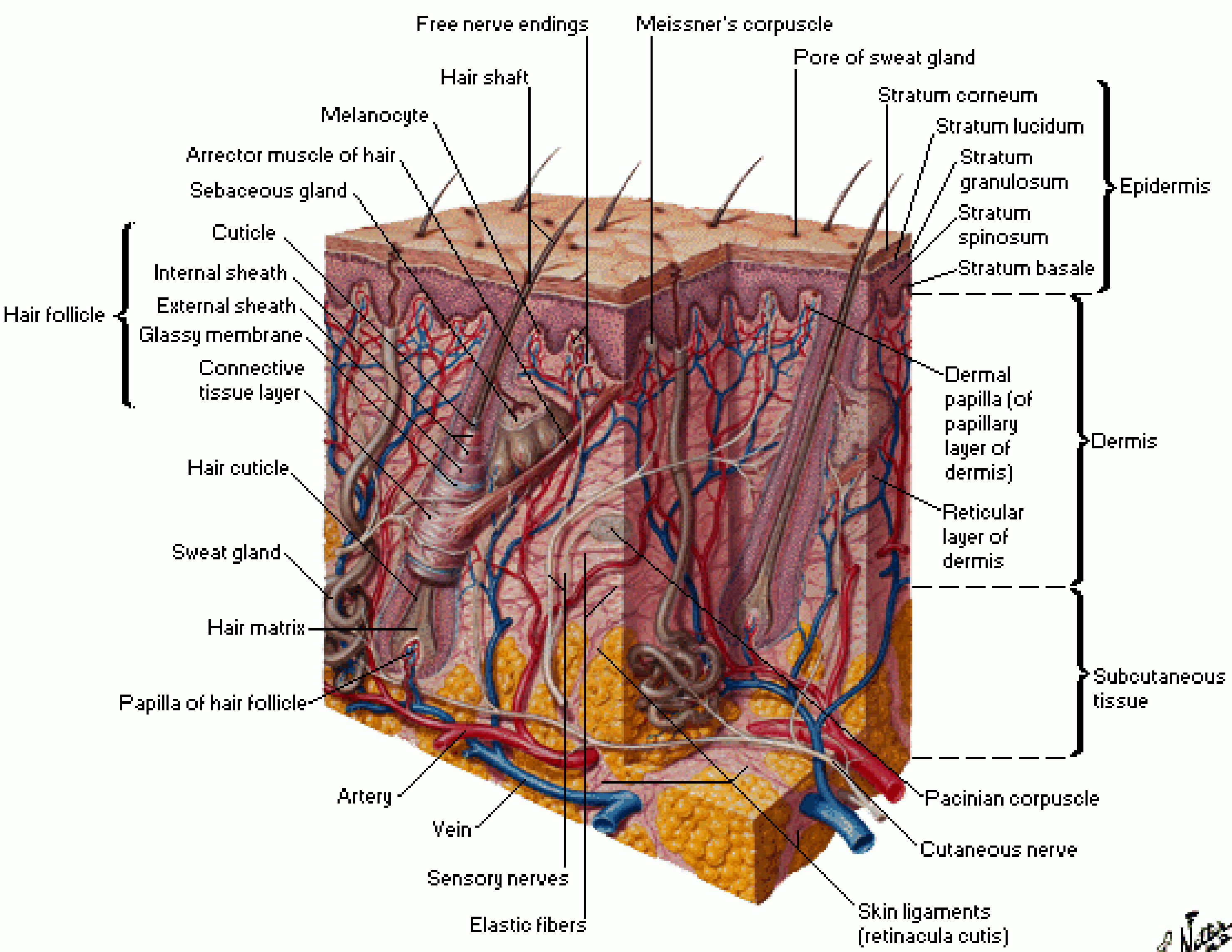
Posterior View

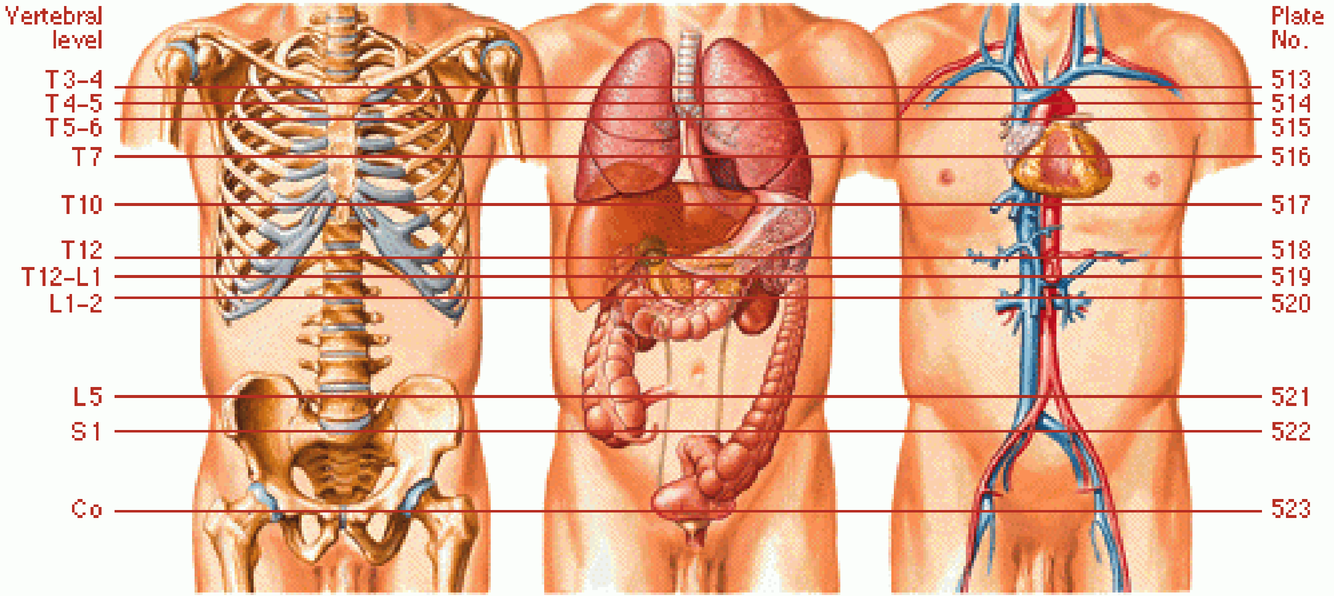


Inguinal Region



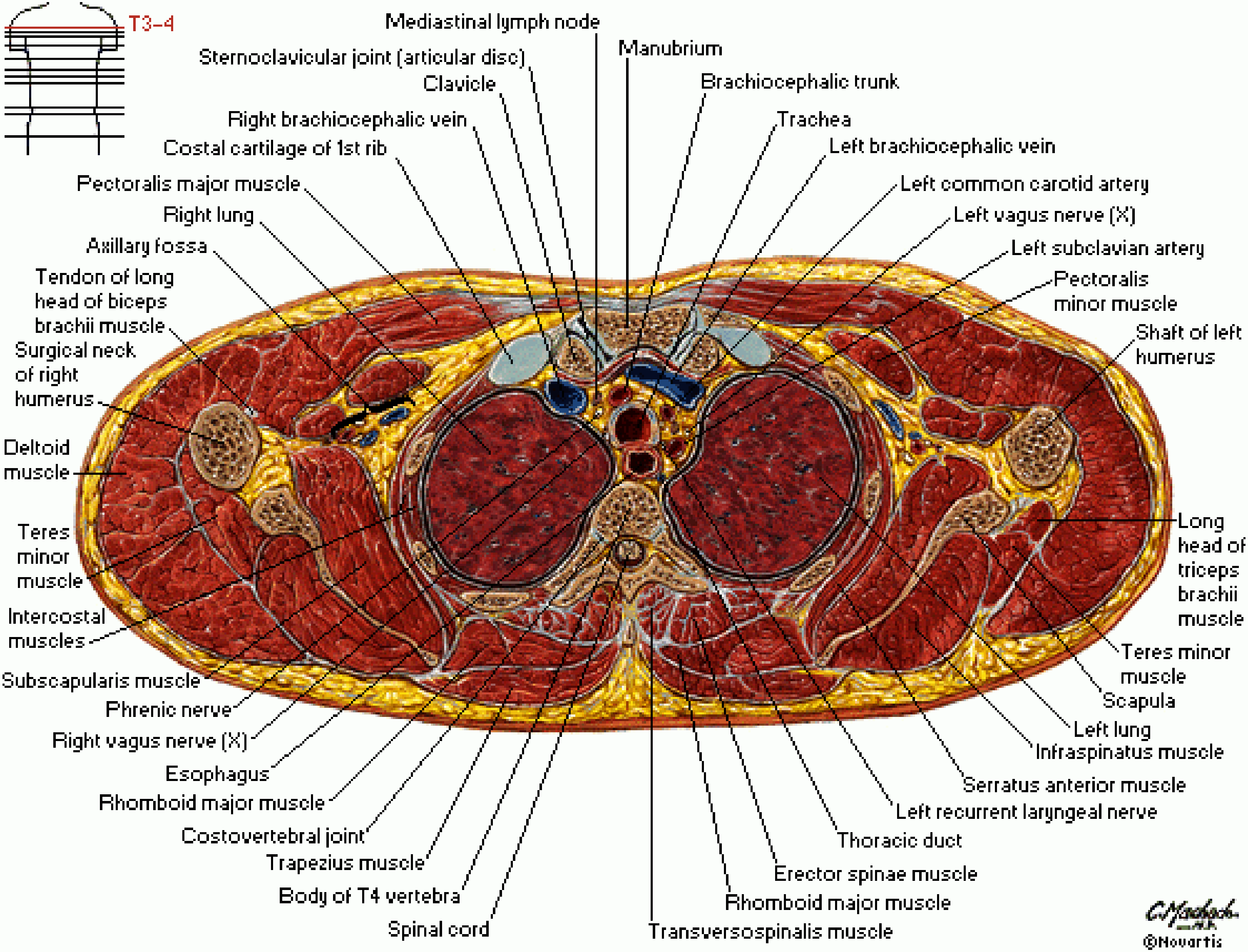
Cross Section of Skin




Vertebral level
T3–4
T4–5
T5–6
T7
T10
T12
T12–L1
L1–2
L5
S1
Co
Plate No.
513
514
515
516
517
518
519
520
521
522
523

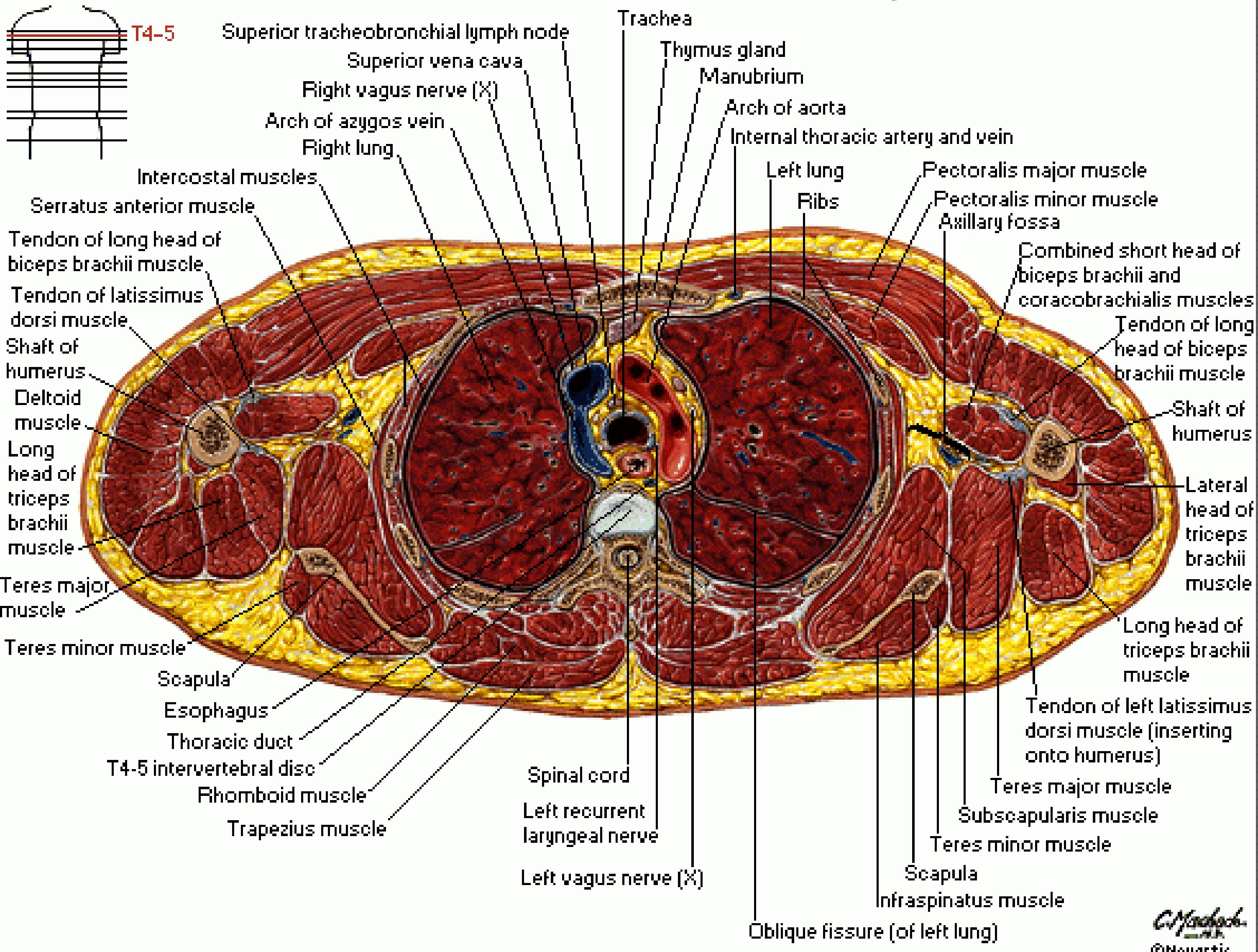
Thorax - Brachiocephalic Vessels

Transverse Section - Level of T3, Sternoclavicular Joint



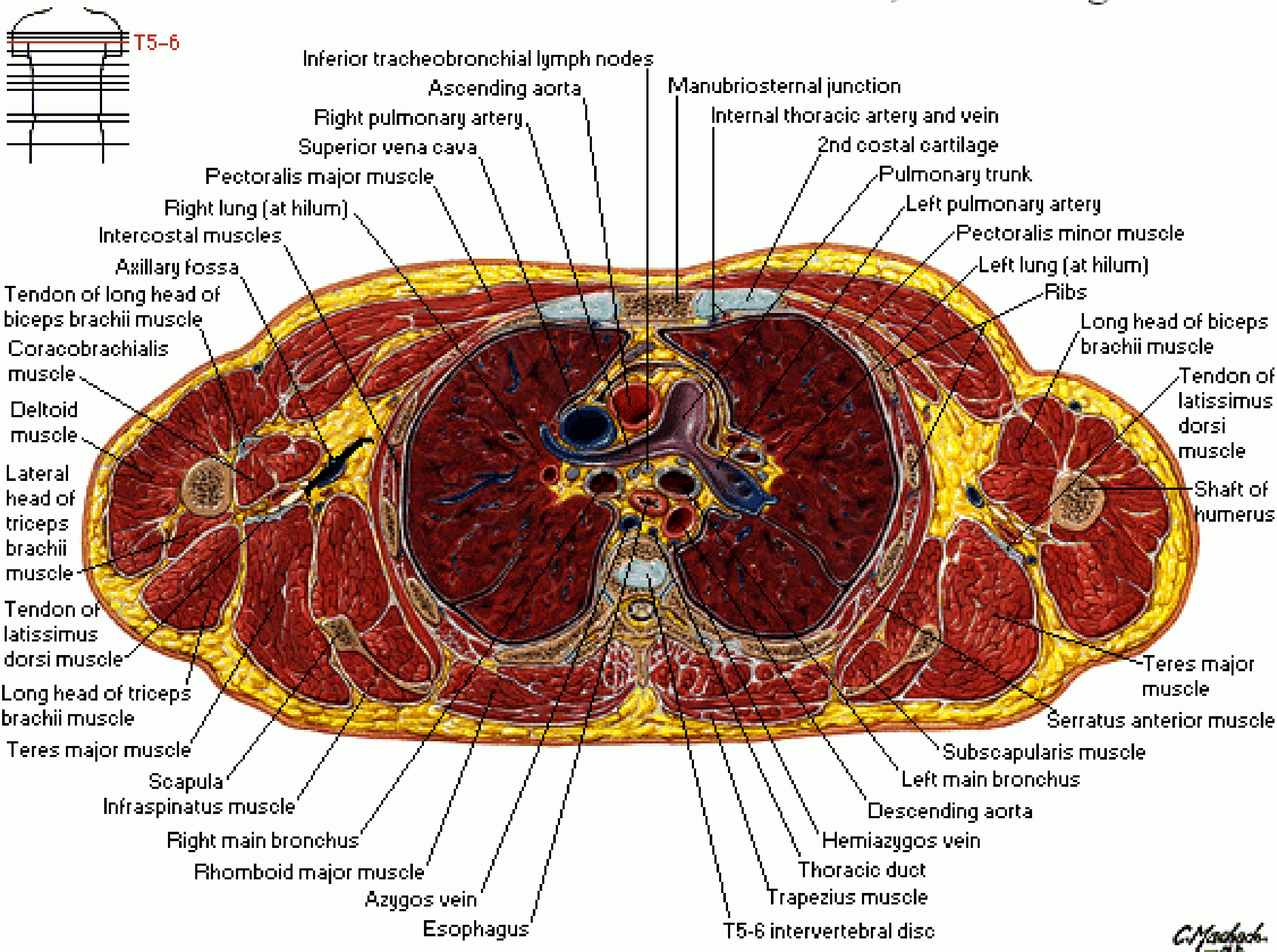
Thorax - Aortic and Azygos Arches

Transverse Section - T4-5 Intervertebral Disc, Manubrium



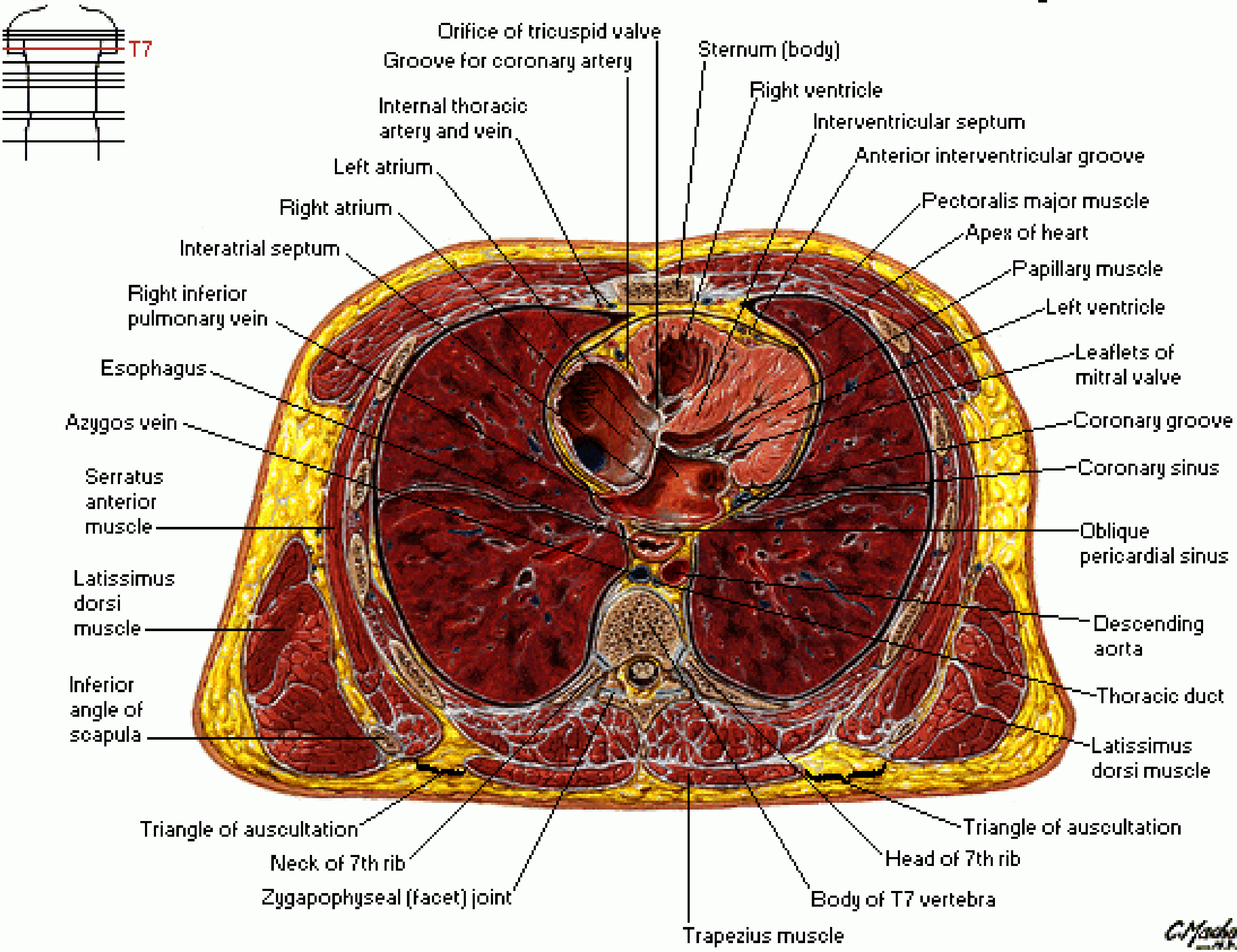
Thorax - Pulmonary Trunk

Transverse Section - T5-6 Intervertebral Disc, Sternal Angle



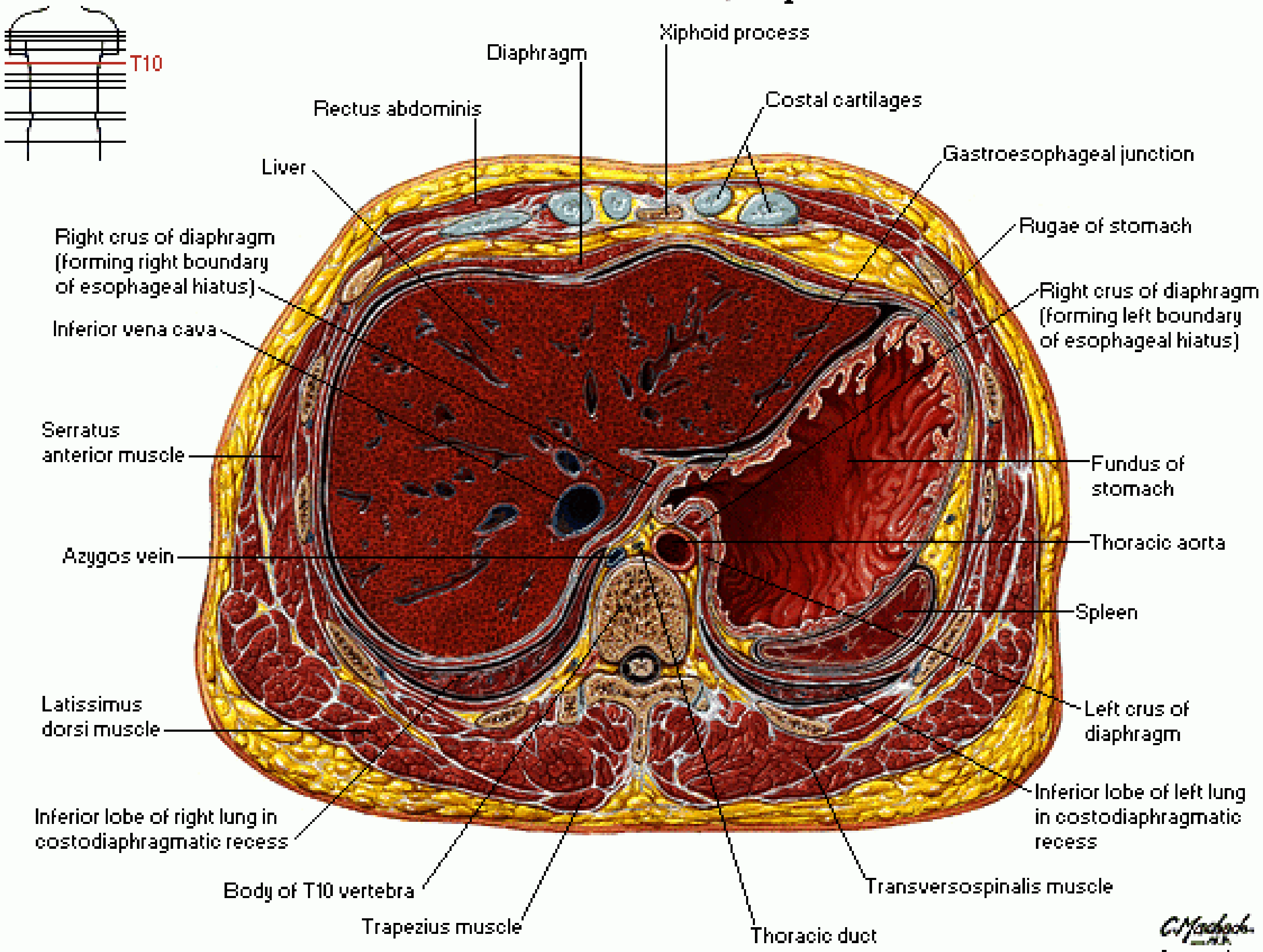
Thorax - Four Chambers of Heart

Transverse Section - Level of T7, 3rd Interchondral Space



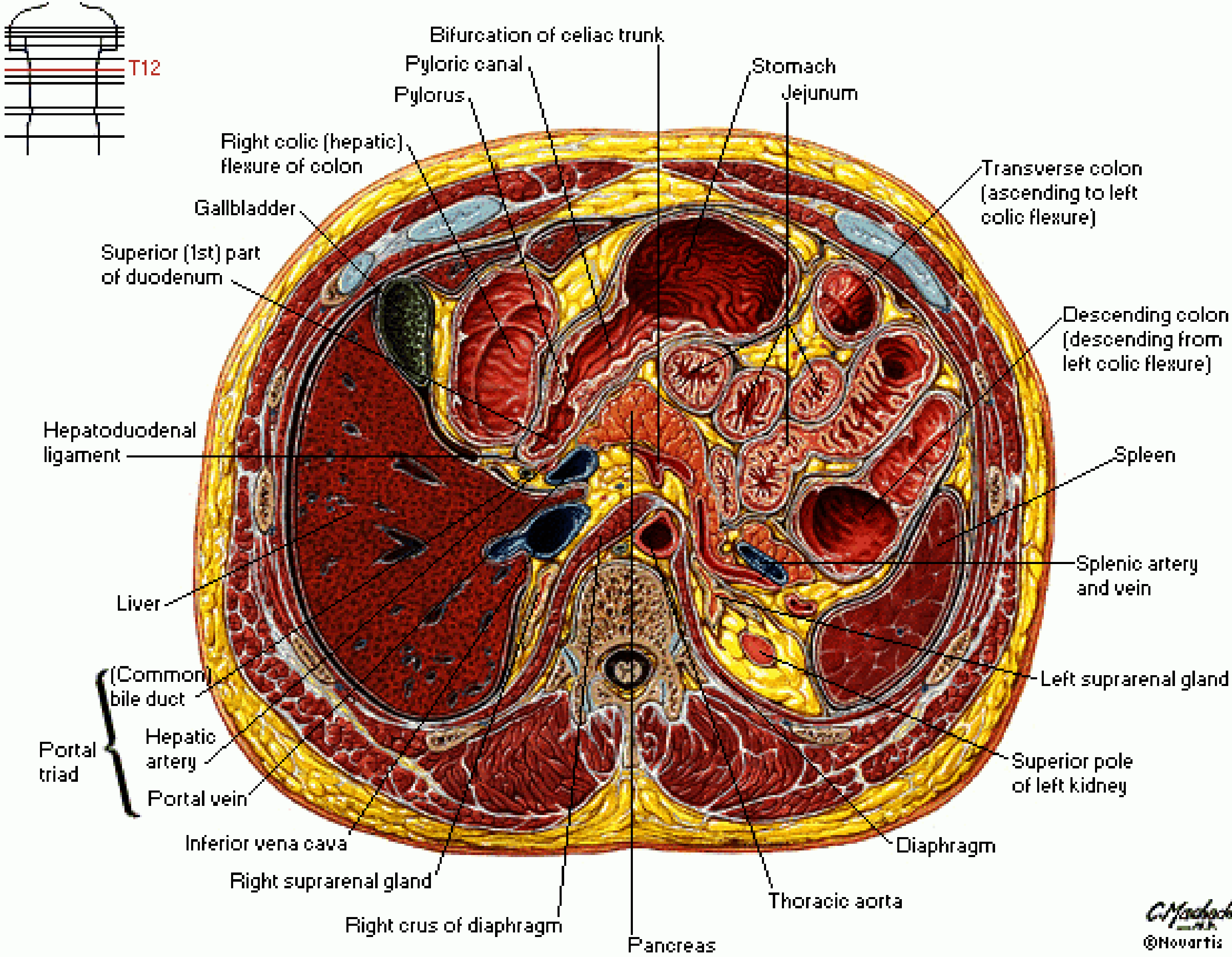
Abdomen - Gastroesophageal Junction

Transverse Section - Level of T10, Xiphisternal Junction



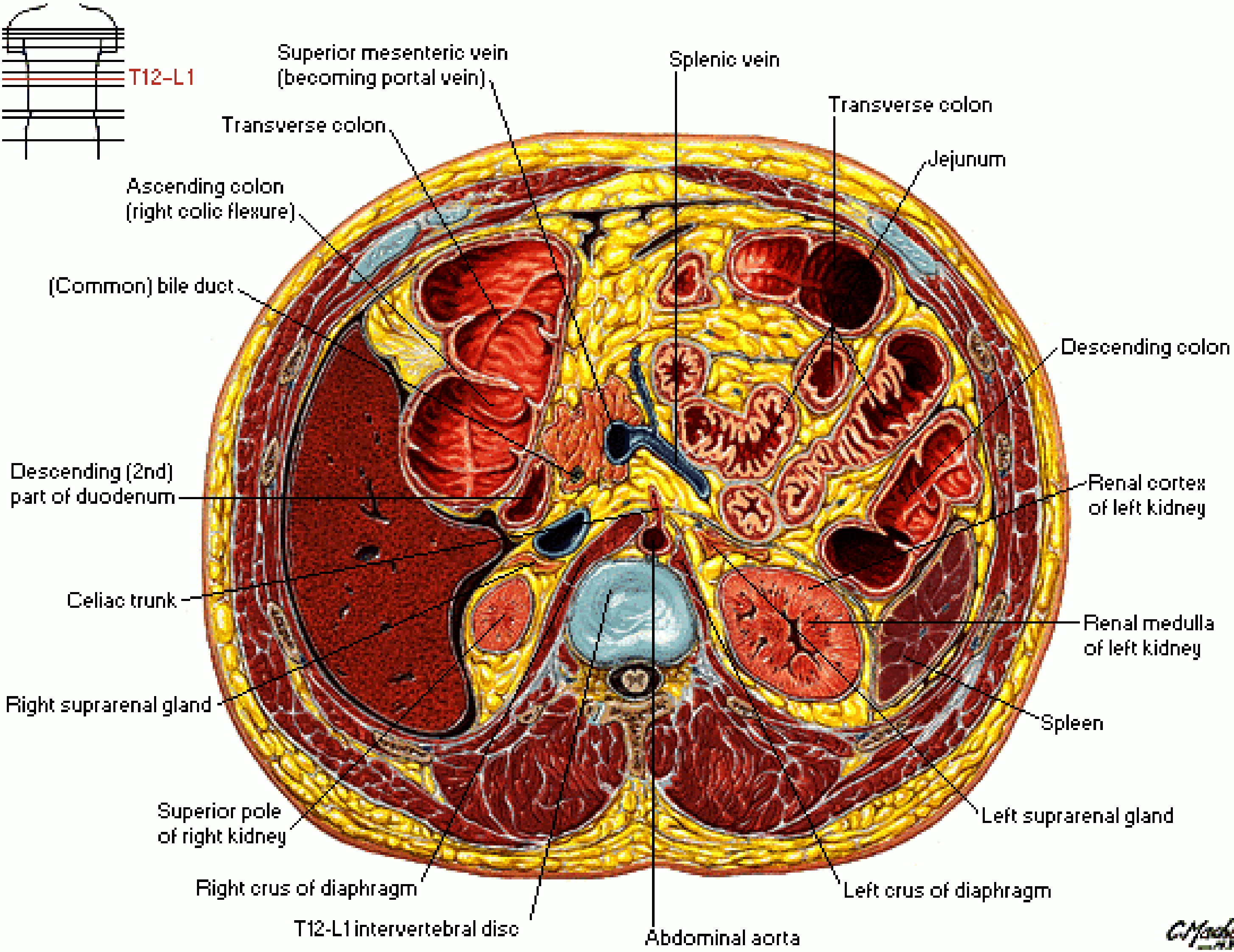
Abdomen - Pylorus and Body of Pancreas

Transverse Section - Level of T12, Inferior to Xiphoid



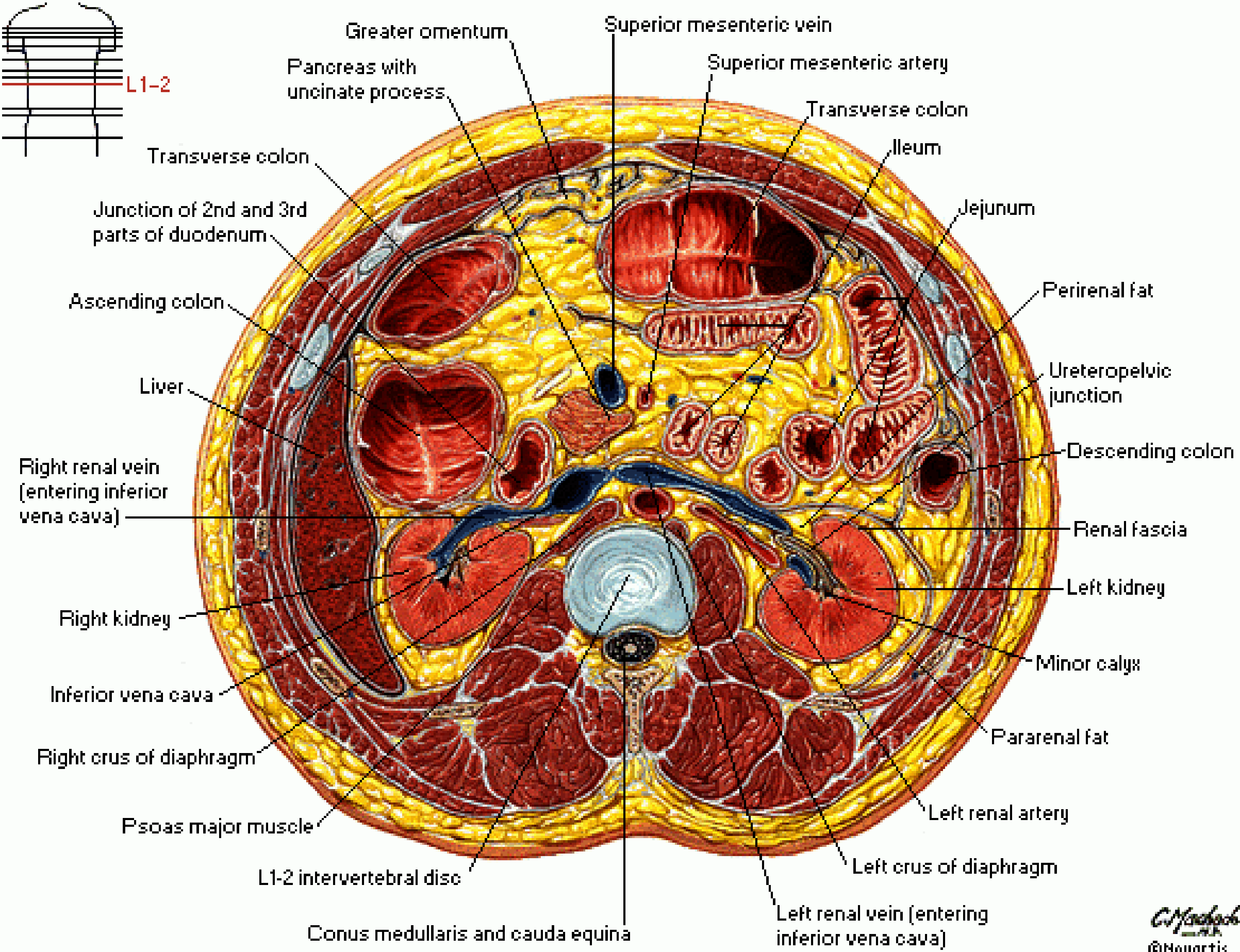
Abdomen - Origins of Celiac Artery and Portal Vein

Transverse Section - Level of T12-L1 Intervertebral Disc



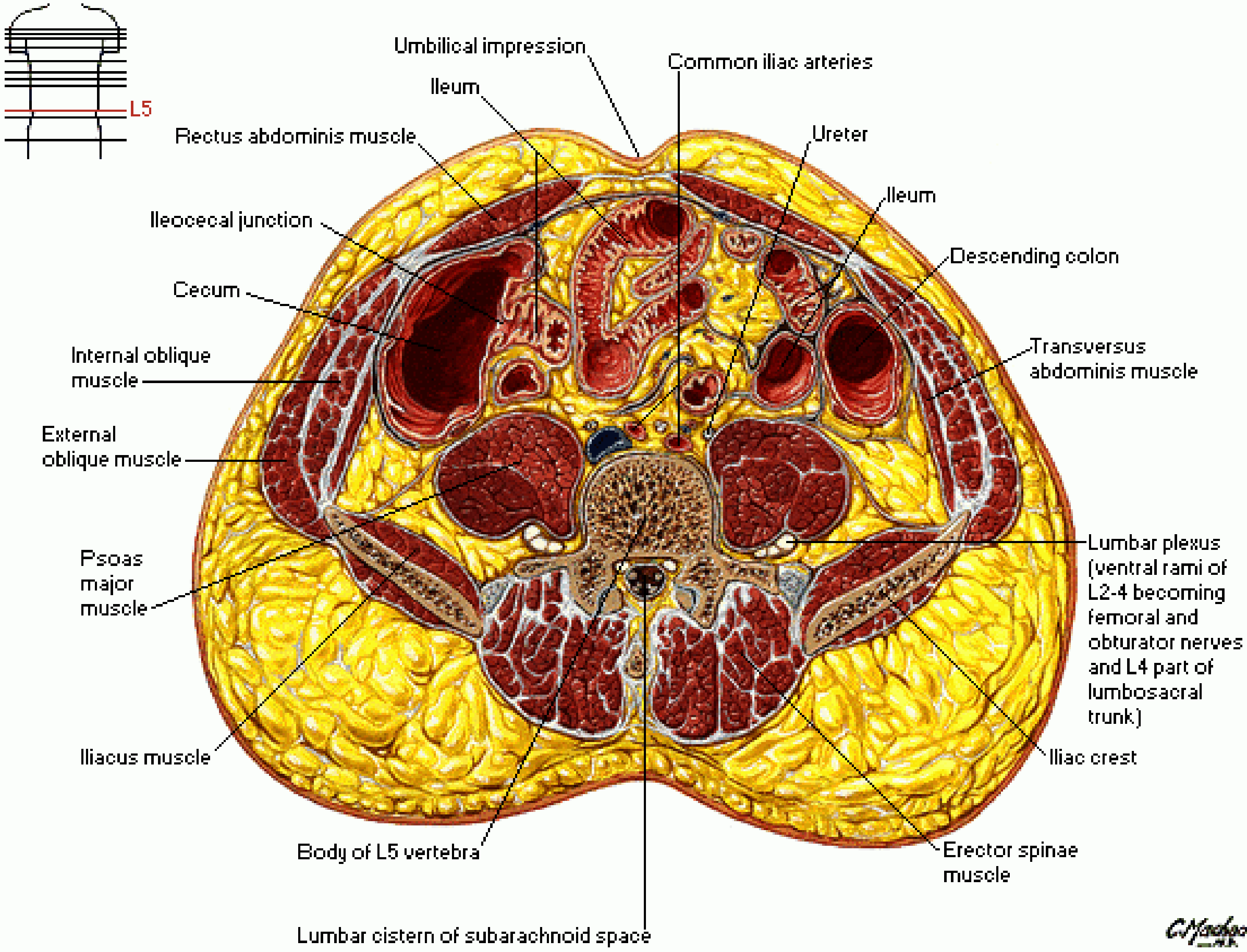
Abdomen - Renal Hilus and Vessels

Transverse Section - Level of L1-2 Intervertebral Disc



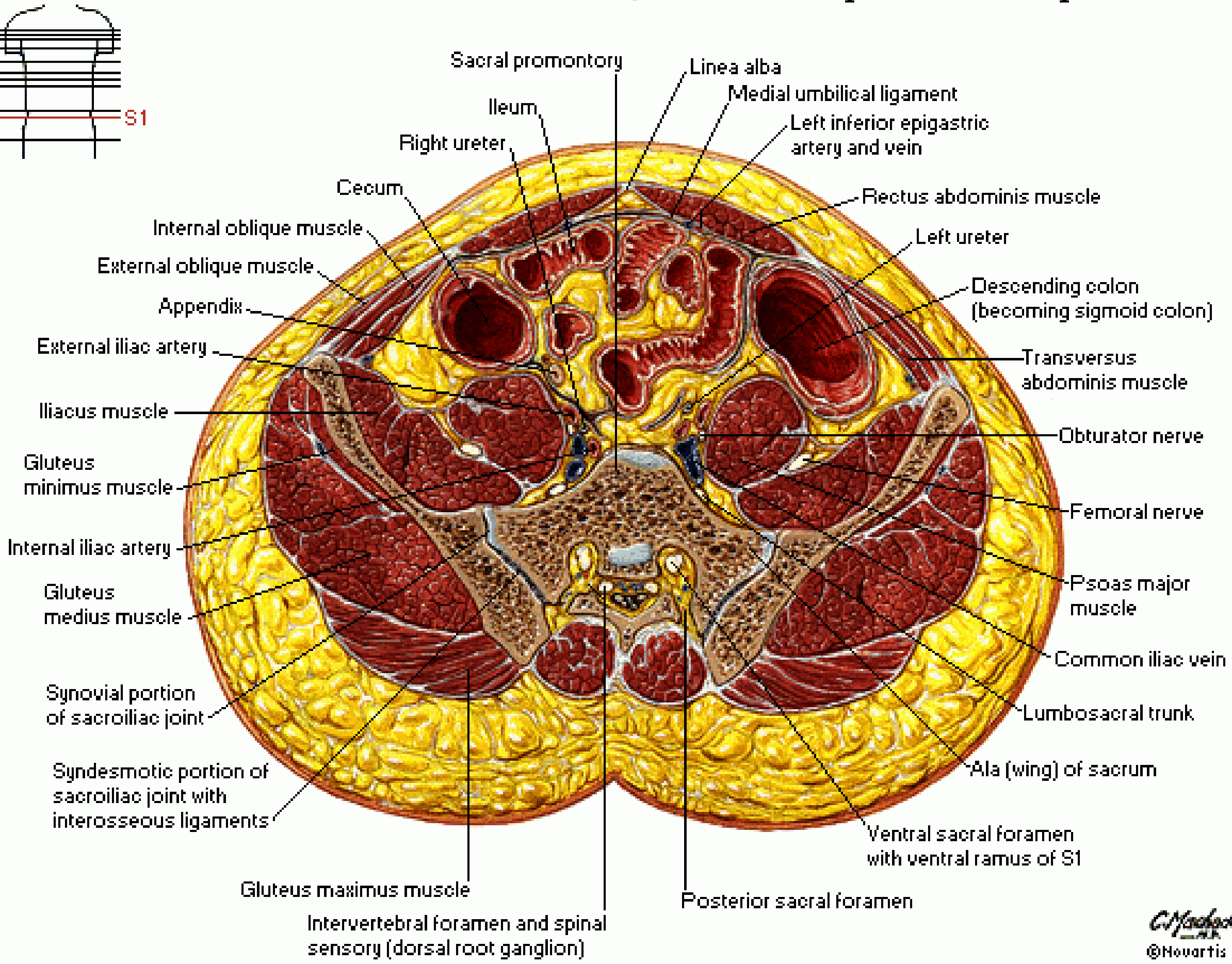
Abdomen - Iliocecal Junction

Transverse Section - Level of L5, near Transtubercular Plane



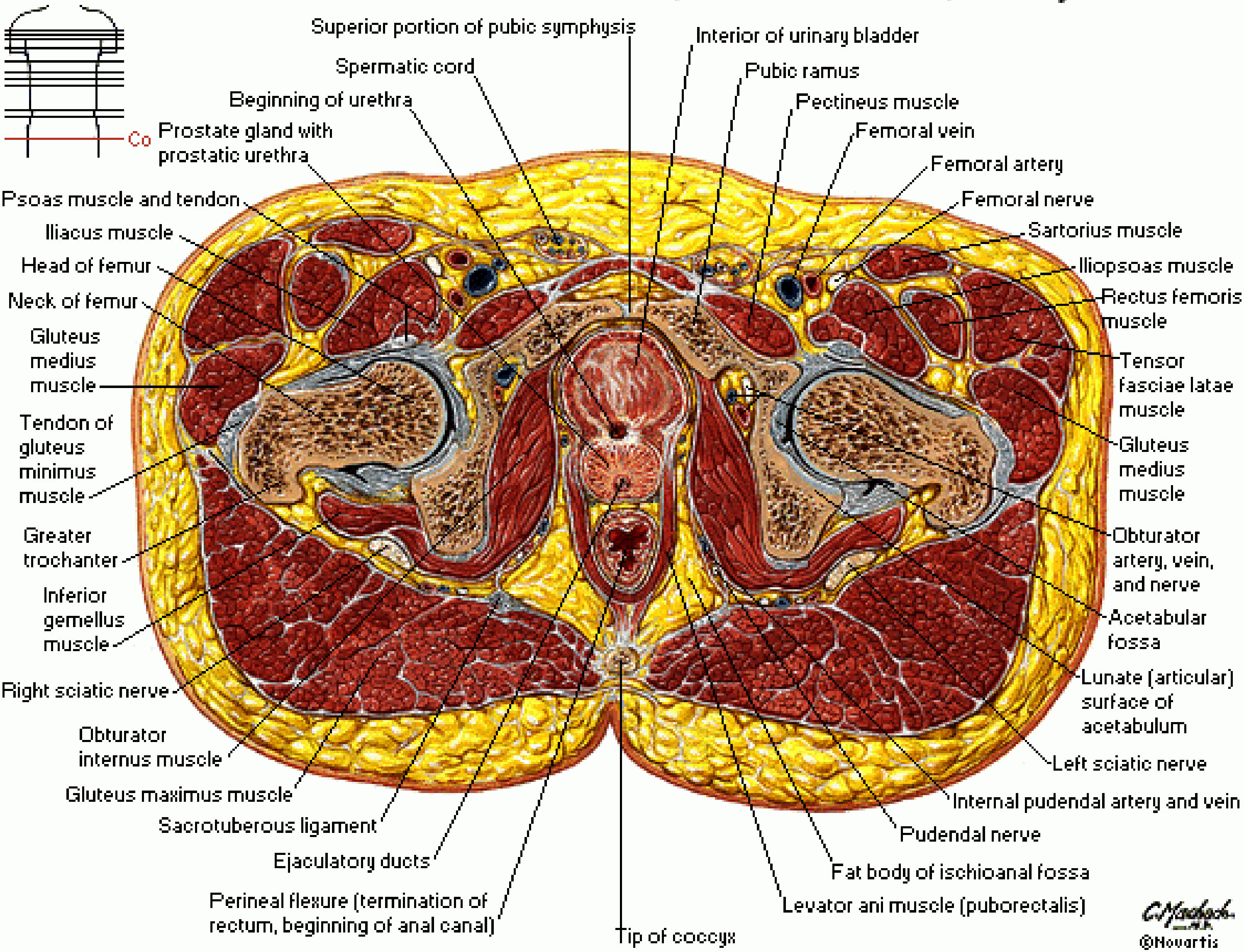
Abdomen - Sacral Promontory

Transverse Section - Level of S1, Anterior Superior Iliac Spines



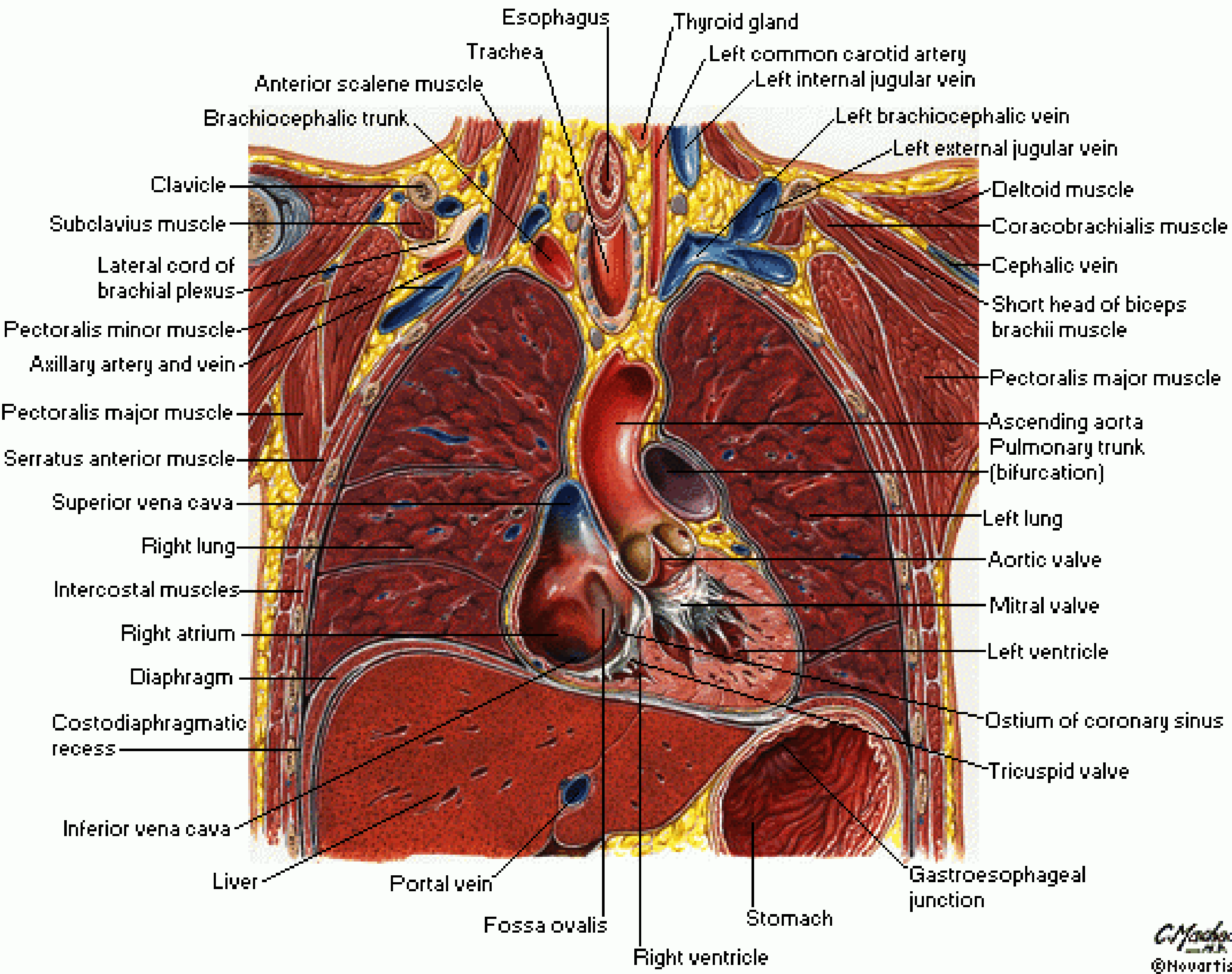
Male Pelvis - Bladder-Prostate Junction

Transverse Section - Pubic Crest, Femoral Heads, Coccyx



Thorax - Heart, Ascending Aorta

Coronal Section - Anterior Axillary Line



Thorax - Trachea, 1° Bronchi, Left Atrium

Coronal Section - Midaxillary Line

